Ingmar R. Prucha
Curriculum Vitae
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Citizenship and Place of Birth:

United States and Austria

Education:

1973	M.A. (Dipl.Ing.) in Communications Engineering, University of Technology Vienna, Vienna, Austria
1976	Diploma in Economics, Institute for Advanced Studies, Vienna, Austria
1977	Ph.D. (Dr.techn.) in Mathematical Economics, University of Technology Vienna, Vienna, Austria Thesis Topic: "An Econometric Model of the Austrian Economy with Special Emphasis on Medium Term Aspects and the Measurement of the Capital Stock"

Current Position:

1991-	Professor, Department of Economics, University of Maryland, College Park

Affiliate Position:

2008-	Honorary Professor, University of Innsbruck, Innsbruck, Austria

Past Positions:

1987-1991	Associate Professor, Department of Economics, University of Maryland, College Park
1981-1987	Assistant Professor, Department of Economics, University of Maryland, College Park
1980-1981	Visiting Researcher and Adjunct Assistant Professor, C.V. Starr Center for Applied Economics and Department of Economics, New York University, New York
1979-1980	Visiting Assistant Professor, Department of Economics, University of Maryland, College Park
1977	Visiting Researcher, Department of Economics, University of Pennsylvania, Philadelphia
1976-1980	"Assistent", Department of Economics, Institute for Advanced Studies, Vienna

Affiliate Appointments:

1985-1989	Faculty Research Fellow, National Bureau of Economic Research, Cambridge, Massachusetts
1989-1992	Research Associate, National Bureau of Economic Research, Cambridge, Massachusetts
1985 -	Faculty Member, Applied Mathematics and Scientific Computing Program, University of Maryland
1988-	Member, Conference of Research in Income and Wealth
2003 -	Faculty Member, Statistics Consortium, University of Maryland
2004 -	Faculty Associate, Maryland Population Research Center, University of Maryland
2005-	Fellow, CESifo Institute, Munich, Germany

Visiting Appointments:

1982 summer	Visiting Researcher, National Bureau of Economic Research, New York
1983 summer	Visiting Researcher, National Bureau of Economic Research, New York
1995 October	Visiting Researcher, University of Konstanz, Germany
1995 December	Visiting Professor, Institute for Advanced Studies, Vienna, Austria
2002 April	Visiting Professor, Institute for Advanced Studies, Vienna, Austria
2003 October	Visiting Professor, University of Innsbruck, Austria
2005 July	Visiting Professor, CESIfo Institute, Munich, Germany
2006 June	Visiting Professor, Singapore Management University, Singapore
2007 January	Visiting Professor, University of Innsbruck, Austria
2007 July	Visiting Professor, CESIfo Institute, Munich, Germany
2007 July	Visiting Professor, University of Munich, Germany
2008 January	Visiting Professor, University of Innsbruck, Austria
2008 June	Visiting Professor, Spatial Econometric Advanced Institute, Rome
2008 October	Visiting Professor, CESIfo Institute, Munich, Germany
2009 January	Visiting Professor, CESIfo Institute, Munich, Germany
2009 June	Visiting Professor, Spatial Econometric Advanced Institute, Rome
2009 July	Visiting Professor, University of Innsbruck, Austria
2009 December	Visiting Researcher, ETH Zuerich, Zuerich, Switzerland
2010 June	Visiting Researcher, ETH Zuerich, Zuerich, Switzerland
2010 July	Visiting Professor, Spatial Econometric Advanced Institute, Rome
2011 May	Distinguished Adjunct Professor, American University, Washington
2011 June	Visiting Professor, Spatial Econometric Advanced Institute, Rome
2012 January	Visiting Professor, Vienna Graduate School of Economics, Vienna

Research Interests:

Theoretical Econometrics: Cross sectional and panel data models with spatial/cross sectional dependencies; dynamic nonlinear time series models; asymptotic theory for M-estimators, including maximum likelihood and GMM estimators; seemingly unrelated and simultaneous panel data models; robust and adaptive estimation methods; etc.

Applied Econometrics: Growth convergence; determinants of dynamic factor demand, including investment in physical and R&D capital; productivity; econometric modeling and estimation of depreciation rates for capital and R&D; etc.

Recent Research Grant:

"Specification and Estimation of Spatial Models", National Science Foundation, June 1, 2000 - December 31, 2003. Joint research project with Harry Kelejian. Budget: $231,578.

"New Methods and Software for Spatial-Regression Analysis", National Institute of Health, SBIR, Phase I, with Stata Corp, September 1, 2006-November 30, 2007. Joint research project with David Drukker and Harry Kelejian. Budget: $100,000.

"New Methods and Software for Spatial-Regression Analysis", National Institute of Health, SBIR, Phase II, with Stata Corp, September 30, 2007-September 29, 2009. Joint research project with David Drukker and Harry Kelejian. Budget: $750,000.

Editorial Activities:

1988-1992	Member of the editorial board of *Empirica*.
1997-present	Member of the editorial board of *Empirical Economics*.
2000-present	Associate Editor of *Econometric Theory*.
2004-present	Associate Editor of *Journal of Econometrics*.
2007-present	Member of the editorial board of *Letters in Spatial and Resource Sciences*.

Program Committee of the North American Summer Meeting of the Econometric Society (Theoretical Econometrics) College Park, 2001.

Guest Editor (jointly with B.M. Poetscher) of *Journal of Econometrics* for annals issue entitled "Contributions to Econometrics, Time Series Analysis, and Systems Identification: A Festschrift in Honor of Manfred Deistler", published 2004

Guest Editor (jointly with B. Baltagi and H.H. Kelejian) of *Journal of Econometrics* for annals issue entitled "Analysis of Spatially Dependent Data", published in 2007

Guest Editor (jointly with Giuseppe Arbia) of *Spatial Economic Analysis* for a special issue entitled: "Contributions to Spatial Analysis: A Festschrift in Honor of Harry Kelejian", in progress.

Honors and Awards:

Journal of Econometrics Fellow
Founding Member of the Spatial Econometrics Association
Ph.D., summa cum laude ("Mit Auszeichnung")
Summer General Research Board Summer Research Award, University of Maryland, College Park, 1983
Summer General Research Board Summer Research Award, University of Maryland, College Park, 1985
General Research Board Semester Research Award and BSOS Scholarship Incentive Award, University of Maryland, College Park, 1990/1991
Departmental Teaching Award, Department of Economics, University of Maryland, Fall 1981, Spring 1982, Fall 1982
Who's Who in America, 2007 Edition, Marquis Who's Who, N.J.

Activities in Model-building and Forecasting:

1976-1980	Member of the quarterly economic forecasting team of the Institute for Advanced Studies, Vienna
1976-1979	Construction of a macroeconometric model of the Austrian economy used in the regular forecasting exercise of the Institute for Advanced Studies, Vienna, and within the world model of Project LINK, University of Pennsylvania, Philadelphia
1978-1980	Head (jointly with G. Munduch) of Project LINK Austria and Austrian representative to Project LINK
1978-1980	Member of the Interactive Simulation (IAS) System project for the development of a user oriented program package for economic research

Memberships:

American Economic Association
American Statistical Association
Econometric Society
European Economic Association
Royal Economic Society

Referee for:

Advances in Econometrics, American Economic Review, Austin Symposia in Economics, Canadian Journal of Economics, Communications in Statistics, Econometrica, Econometric Reviews, Econometrics Journal, Econometric Theory, Empirica, Empirical Economics, German Economic Review, International Economic Review, International Regional Science Review, Journal of Applied Econometrics, Journal of Business and Economic Statistics, Journal of Econometrics, Journal of Economic Dynamics and Control, Journal of Regional Science, Letters in Spatial and Resource Sciences, National Science Foundation, NBER, Conference in Research in Income and Wealth, Regional Science and Urban Economics, Review of Economics and Statistics, Statistics Papers, Structural Change and Economic Dynamics

References:

Donald W.K. Andrews, Department of Economics, Yale University, New Haven, CT 06520, Tel.: 203-432-3698, Web: http://cowles.econ.yale.edu/faculty/andrews.htm

Lung-fei Lee, Department of Economics, Ohio State University, Columbus, OH 43210, Tel.: 614-292-5508, Web: http://www.econ.ohio-state.edu/lee/

Benedikt M. Poetscher, Department of Statistics, Econometrics and Applied Mathematics, University of Vienna, 1010 Vienna, Tel.: + 43-1-4277-38640, Web: http://www.univie.ac.at/seam/cgi-bin/hp/seam.cgi?;poetscher

Peter M. Robinson, Department of Economics, London School of Economics, London WC2A 2AE, Tel.: +44-020-7955-7516, Web: http://personal.lse.ac.uk/robinso1/

John P. Rust, Department of Economics, University of Maryland, College Park, MD 29742, Tel.: 301-405-3489, Web: http://gemini.econ.umd.edu/jrust/

Additional references are available upon request.

Publications:[1]

A. Books and Edited Volumes

"*Dynamic Nonlinear Econometric Models: Asymptotic Theory*," (with B.M. Poetscher). New York: Springer Verlag, 1997.

"*Contributions to Econometrics, Time Series Analysis, and Systems Identification: A Festschrift in Honor of Manfred Deistler,*" eds. (with B.M. Poetscher), Annals Issue, *Journal of Econometrics*, 18(1-2), 2004.

Analysis of Spatially Dependent Data, eds. (with B. Baltagi and H.H. Kelejian), Annals Issue, *Journal of Econometrics*, 140(1), 2007.

B. Articles

"Performance of the LINK System: 1970 vs. 1975 Trade Share Matrix" (with P. Beaumont, V. Filatov), *Empirical Economics*, 4(1), 1979, 11-41.

"R&D, Production Structure, and Productivity Growth in the U.S., Japanese, and German Manufacturing Sectors," (with P.A. Mohnen and M.I. Nadiri) in *Proceedings of the Conference on Quantitative Studies of Research and Development in Industry*, Paris, 1983, 171-221.

"On the Asymptotic Efficiency of Feasible Aitken Estimators for Seemingly Unrelated Regression Models with Error Components," *Econometrica*, 52(1), 1984, 203-207.

"The Structure of Simultaneous Equation Estimators: A Generalization Towards Nonnormal Disturbances" (with H.H. Kelejian), *Econometrica*, 52(3), 1984, 721-736. (*)

"Maximum Likelihood and Instrumental Variable Estimation in Simultaneous Equation Systems with Error Components," *International Economic Review*, 26(2), 1985, 491-506.

"Independent and Uncorrelated Disturbances in Linear Regression: An Illustration of the Difference," (with H.H. Kelejian), *Economics Letters*, 19, 1985, 35-38.

"A Class of Partially Adaptive One-Step M-Estimators for the Nonlinear Regression Model with Dependent Observations," (with B.M. Poetscher), *Journal of Econometrics*, 32(2), 1986, 219-251.

[1]Papers where I am listed as the senior author are marked with a star.

"R&D, Production Structure and Rates of Return in the U.S., Japanese and German Manufacturing Sectors: A Nonseparable Dynamic Factor Demand Model," (with P.A. Mohnen and M.I. Nadiri), *European Economic Review*, 30(4), 1986, 749-771.
"A Comparison of Alternative Methods for the Estimation of Dynamic Factor Demand Models under Nonstatic Expectations," (with M.I. Nadiri), *Journal of Econometrics*, 33(1/2), 1986, 187-211. (*)

"The Variance-Covariance Matrix of the Full Information Maximum Likelihood Estimators in Triangular Structural Systems: Consistent Estimation," *Econometrica*, 55(4), 1987, 977-978.

"Seemingly Unrelated Regression," in S. Kotz and N.L. Johnson (eds.), *Encyclopedia of Statistical Sciences*, Vol. 8, New York: Wiley, 1987, 329-331.

"On the Computation of Estimators in Systems with Implicitly Defined Variables," (with M.I. Nadiri), *Economics Letters*, 26, 1988, 141-145. (*)

"A Uniform Law of Large Numbers for Dependent and Heterogeneous Data Processes," (with B.M. Poetscher), *Econometrica*, 57, 1989, 675-683.

"Generic Uniform Law of Large Numbers," (with B.M. Poetscher), in S. Kotz and N.L. Johnson (eds.), *Encyclopedia of Statistical Sciences*, Supplementary Volume, New York: Wiley, 1989, 67-69.

"A Note on the Estimation of Non-Symmetric Dynamic Factor Demand Models," (with D.B. Madan), *Journal of Econometrics*, 42, 1989, 275-283.

"Dynamic Factor Demand Models, Productivity Measurement, and Rates of Return: Theory and an Empirical Application to the U.S. Bell System," (with M.I. Nadiri), *Structural Change and Economic Dynamics*, 2, 1990, 263-289.

"Comparison and Analysis of Productivity Growth and R&D Investment in the Electrical Machinery Industries of the United States and Japan," (with M.I. Nadiri), in C.R. Hulten, ed., *Productivity Growth in Japan and the United States, Studies in Income and Wealth Series*, 53, University of Chicago Press, 1990, 109-133.

"Comments on 'The Impacts of Fixed Inputs on Investment Behavior and Productivity: An Empirical Comparison for the U.S. and Japanese Manufacturing Industries' by Catherine Morrison", in C.R. Hulten, ed., *Productivity Growth in Japan and the United States, Studies in Income and Wealth Series*, 53, University of Chicago Press, 1990, 167-172.

"On the Specification of Accelerator Coefficients in Dynamic Factor Demand Models," (with M.I. Nadiri), *Economics Letters*, 35, 1991, 123-129. (*)

"Basic Structure of the Asymptotic Theory in Dynamic Nonlinear Econometric Models, Part I: Consistency and Approximation Concepts", (with B.M. Poetscher), *Econometric Reviews*, 10, 1991, 125-216.

"Basic Structure of the Asymptotic Theory in Dynamic Nonlinear Econometric Models, Part II: Asymptotic Normality", (with B.M. Poetscher), *Econometric Reviews*,10, 1991, 253-325.

"Reply to Basic Structure of the Asymptotic Theory in Dynamic Nonlinear Econometric Models", (with B.M. Poetscher), *Econometric Reviews*, 10, 1991, 349-357.

"Maximum Likelihood and Instrumental Variable Estimation in Simultaneous Equation Systems with Error Components," in G.S. Madalla (ed.), *The Econometrics of Panel Data*, Vol. I, Edward Elgar Publishing Co., 1993, 308-326. (Reprint of article in *International Economic Review*, 26, 1985.)

"Generic Uniform Convergence and Equicontinuity Concepts for Random Functions: An Exploration of the Basic Structure," (with B.M. Poetscher), *Journal of Econometrics*, 60, 1994, 23-63.

"On the Formulation of Uniform Laws of Large Numbers: A Truncation Approach," (with B.M. Poetscher), *Statistics*, 25, 1994, 343-360.

"On the Econometric Estimation of a Constant Rate of Depreciation," *Empirical Economics*, 20, 1995, 299-302.

"Estimation of the Depreciation Rate of Physical and R&D Capital in the U.S. Total Manufacturing Sector," (with M.I. Nadiri), *Economic Inquiry*, 34, 1996, 43-56.

"Endogenous Capital Utilization and Productivity Measurement in Dynamic Factor Demand Models: Theory and an Application to the U.S. Electrical Machinery Industry", (with M.I. Nadiri), *Journal of Econometrics*, 71, 1996, 343-379.(*)

"Econometrics", (with H.H. Kelejian), in S.I. Gass and C. M. Harris, eds., *Encyclopedia of Operations Research and Management Science*, Kluwer, 1996, 175-177.

"Basic Structure of the Asymptotic Theory in Dynamic Nonlinear Econometric Models, Part I: Consistency and Approximation Concepts", (with B.M. Poetscher), in H. Bierens and R. Gallant (eds.), *Nonlinear Models*, Vol. 1, Edward Elgar Publishing, 1997, 333-424. (Reprint of article in *Econometric Reviews*, 10, 1991.)

"Basic Structure of the Asymptotic Theory in Dynamic Nonlinear Econometric Models, Part II: Asymptotic Normality", (with B.M. Poetscher), in H. Bierens and R. Gallant (eds.), *Nonlinear Models*, Vol. 1, Edward Elgar Publishing, 1997, 425-497. (Reprint of article in *Econometric Reviews*, 10, 1991.)

"Sources of Growth of Output and Convergence of Productivity in Major OECD Countries", (with M.I. Nadiri), *International Journal of Production Economics*, 52, 1997, 133-146.

"Estimation of a Variable Rate of Depreciation: A Dummy Variable Approach," *Structural Change and Economic Dynamics*, 8, 1997, 319-325.

"Estimation of the Spatial Autoregressive Parameter by Two Stage Least Squares Procedures: A Serious Problem", (with H.H. Kelejian), *International Regional Science Review*, 20, 1997, 103-111.

"A Generalized Spatial Two Stage Least Squares Procedure for Estimating a Spatial Autoregressive Model with Autoregressive Disturbances", (with H.H. Kelejian), *Journal of Real Estate Finance and Economics*, 17, 1998, 99-121.

"A Generalized Moments Estimator for the Autoregressive Parameter in a Spatial Model", (with H.H. Kelejian), *International Economic Review*, 40, 1999, 509-533.

"Basic Elements of Asymptotic Theory," (with B.M. Poetscher), in B. Baltagi (ed.), *A Companion in Theoretical Econometrics*, Basil Blackwell, 2001, 201-229.

"Dynamic Factor Demand Models and Productivity Analysis", (with M.I. Nadiri), in E. Dean, M. Harper and C. Hulten (eds.), *New Directions in Productivity Analysis*, University of Chicago Press, 2001, 103-164.

"Reply to Dynamic Factor Demand Models and Productivity Analysis", (with M.I. Nadiri), in E. Dean, M. Harper and C. Hulten (eds.), *New Directions in Productivity Analysis*, University of Chicago Press, 2001, 167-171.

"On the Asymptotic Distribution of the Moran I Test Statistic with Applications," (with H.H. Kelejian), *Journal of Econometrics*, 104, 2001, 219-257.

"2SLS and OLS in a Spatial Autoregressive Model with Equal Spatial Weights," (with H.H. Kelejian), *Regional Science and Urban Economics*, 32, 2002, 691-707.

"Small Sample Properties of Estimators of Spatial Autoregressive Models with Autoregressive Disturbances," (with D. Das and H.H. Kelejian), *Papers in Regional Science*, 82, 2003, 1-26.

"Guest Editorial: Contributions to Econometrics, Time Series Analysis, and Systems Identification: a Festschrift in Honor of Manfred Deistler," (with B.M. Poetscher), *Journal of Econometrics*, 118, 2004, 1-5.

“Estimation of Simultaneous Systems of Spatially Interrelated Cross Sectional Equations,” (with H.H. Kelejian), *Journal of Econometrics*, 118, 2004, 27-50.

“Instrumental Variable Estimation of a Spatial Autorgressive Model with Autoregressive Disturbances: Large and Small Sample Results,” (with H.H. Kelejian and E. Yuzefovich), in J. LeSage and R.K. Pace, *Spatial and Spatiotemporal Econometrics, Advances in Econometrics*, Vol. 18. New York: Elsevier, 2004.

“Estimation Problems in Models with Spatial Weighting Matrices which have Blocks of Equal Elements”, (with H.H. Kelejian and Y. Yuzefovich), *Journal of Regional Science*, 46, 2006, 507-517.

“Guest Editorial: Analysis of Spatially Dependent Data,” (with H.H. Kelejian), *Journal of Econometrics* 140, 2007, 1-4.

“Panel Data Models with Spatially Correlated Error Components,” (with M. Kapoor and H.H. Kelejian), *Journal of Econometrics* 140, 2007, 97-130.

“HAC Estimation in a Spatial Framework,” (with H.H. Kelejian), *Journal of Econometrics* 140, 2007, 131-154.

“The Relative Efficiencies of Various Predictors in Spatial Econometric Models Containing Spatial Lags,” (with H.H. Kelejian), *Regional Science and Urban Economics* 37, 2007, 363-374.

“Central Limit Theorems and Uniform Laws of Large Numbers for Arrays of Random Fields,” (with N. Jenish), *Journal of Econometrics* 150, 2009, 86-98

“A Spatial Cliff-Ord-type Model with Heteroskedastic Innovations: Small and Large Sample Results,” (with. I. Arraiz, D.M. Drukker and H.H. Kelejian), *Journal of Regional Science*, 50, 2010, 592-614.

“Specification and Estimation of Spatial Autoregressive Models with Autoregressive and Heteroskedastic Disturbances,” (with H.H. Kelejian), *Journal of Econometrics*, 157, 2010, 53-67.

“Spatial Models with Spatially Lagged Dependent Variables and Incomplete Data,” (with H.H. Kelejian), *Journal of Geographical Systems*, 12, 2010, 241-257

Papers Submitted for Publication:

"On Two-step Estimation of a Spatial Autoregressive Model with Autoregressive Disturbances and Endogenous Regressors," (with D.M. Drukker and P. Egger), Department of Economics, University of Maryland, mimeo, 2011, revised and resubmitted to *Econometric Reviews*.

"On Spatial Processes and Asymptotic Inference under Near-Epoch Dependence," (with N. Jenish), Department of Economics, University of Maryland, mimeo, 2011, revised and resubmitted to *Journal of Econometrics*.

"Limit Theory for Panel Data Models with Cross Sectional Dependence and Sequential Exogeneity," (with G. Kuersteiner), Department of Economics, University of Maryland, mimeo, 2010, revise and resubmit *Journal of Econometrics*.

"Creating and Managing Spatial-Weighting Matrices Using the spmat Command," (with D.M. Drukker, H. Peng, and R. Raciborski), Department of Economics, University of Maryland, mimeo, 2011, revise and resubmit to *Stata Journal*.

"Maximum-Likelihood and Generalized Spatial Two-Stage Least-Squares Estimators for a Spatial-Autoregressive Model with Spatial-Autoregressive Disturbances," (with D.M. Drukker, and R. Raciborski), Department of Economics, University of Maryland, mimeo, 2011, revise and submit to *Stata Journal*.

"A Command for Estimating Spatial-Autoregressive Models with Spatial-Autoregressive Disturbances and Additional Endogenous Variables," (with D.M. Drukker, and R. Raciborski), Department of Economics, University of Maryland, mimeo, 2011, revise and resubmit to *Stata Journal*.

"Small Sample Properties of the $I^2(q)$ Test Statistic for Spatial Dependence," (with D.M. Drukker), Department of Economics, University of Maryland, mimeo, 2011, submitted to *Spatial Economic Analysis*.

Working Papers in Progress:

"GMM Estimation Theory for Dynamic Panel Data Models with Cliff-Ord Spatial Interactions, Common Factors, and Sequential Exogneity," (with D.M. Drukker and G. Kuersteiner)

"A Test for Spatial Dependence with Reduced Information Requirements"

"Estimation of Simultaneous Systems with Higher Order Spatial/Cross-Sectional Interactions." (with D.M. Drukker and P. Egger)

"A Model of Spatially Dependent Discrete Choices," (with H.H. Kelejian)

"Spatial β- and σ-Convergence," (with P. Egger and M. Pfaffermayr)

Older Unpublished Papers:

A list of earlier unpublished papers is available upon request. Those papers were written at the Institute for Advanced Studies, Vienna, between 1976 and 1980 and reflect my work as an applied economist at that institute. The topics of those papers range over the following areas of applied research:

- macro-econometric model building
- forecasting (including forecasts for Project LINK)
- policy evaluation
- econometric software development
- data construction