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EDUCATION

Ph.D. 1975 University of Minnesota; B.A. 1970 Duke University (Magna Cum Laude)

WORK EXPERIENCE

Elizabeth & James Killian Professor of Economics, Massachusetts Institute of Technology, 2008 -

Associate, University of Chicago, 2018-

Research Associate (Professor), University of Chicago, 2008 -2018

Charles E. Merriam Distinguished Service Professor, University of Chicago, 1998–2008

Visiting Professor of Economics, Yale University, 2001, 2003, 2005, 2006

Visiting Professor of Economics, University College London, 2005

Visiting Professor of Economics, MIT, Spring 2001, 2006, Fall 2007

Charles E. Merriam Professor, University of Chicago, 1994 - 1997

Distinguished Visiting Professor, CEMFI, Madrid, Spring 1997

Professor of Economics, University of Chicago, 1985 -1994

STICERD Visiting Professor, London School of Economics, Spring 1995, 1996

Visiting Professor of Economics, University of Chicago, 1984 -1985

Professor of Economics, Carnegie-Mellon University, 1980 -1985

Visiting Scholar, Research Department, Federal Reserve Bank of Minneapolis, 1978-1979

Associate Professor of Economics, Carnegie-Mellon University, 1978 -1980

Assistant Professor of Economics, Graduate School of Industrial Administration, Carnegie-Mellon University, 1975 -1978

Research Fellow, Federal Reserve Bank of Minneapolis, 1974 – 1975

Research Assistant, Board of Governors, Washington, Summer 1974

Teaching Assistant for graduate level microeconomics, University of Minnesota, 1972-1974

Research Assistant, Duke University, Summer 1970

PROFESSIONAL HONORS

FIRS Lifetime Achievement Award, 2017

Douglas North Honorary Lecture, Washington University in St. Louis, 2016

Gideon Fishelson Lecture, The Eitan Berglas School of Economics, Tel Aviv University, Israel, 2015

Sir John Hicks Lecture for the Society for the Advancement of Economic Theory, Cambridge, UK, 2015

Theodore W. Schultz Award, 2013

Frisch Medal, The Econometric Society, 2012 for the paper "A Structural Evaluation of a Large-Scale Quasi-Experimental Microfinance Initiative"

Elected Member, National Academy of Sciences, 2012 –

Distinguished Visiting Scholar, Stanford Graduate School of Business, April, 2012

Jean-Jacques Laffont Prize, 2011

Gorman Lecture at University College London, 2010

Jacob Marschak Lecture for the Econometric Society, 2007, Bogotá, Colombia

Simon Kuznets Memorial Lecture Series at Yale University, 2005

Frisch Medal, The Econometric Society, 1998 for the paper "Risk and Insurance in Village India"

Elected Member, American Academy of Arts and Sciences, 1994 –

Elected Fellow, The Econometric Society, 1985 –

National Science Foundation Traineeship, 1970-1972

Woodrow Wilson Fellow

Sophomore and Junior Honors, Phi Beta Kappa, Duke University

PROFESSIONAL POSITIONS

Founding Fellow, International Association for Applied Econometrics, 2018-

President, Society for the Advancement of Economic Theory, 2017 (First Vice-President, 2016; Executive Committee, 2015)

Visiting Scholar in Development Economics at SIEPR, Stanford University, 2017

Fama-Miller Visitor, Fama-Miller Center for Research in Finance, University of Chicago, 2017

Member, Advisory Board, *Economic Theory*, 2015 –

Member, Ph.D. Program Committee, MIT Institute for Data, Systems, and Society, 2014-2015

Faculty Affiliate, MIT Golub Center for Finance and Policy, 2014 –

Fellow, Society for Economic Measurement, 2014 –

Member, North America Council of the Econometric Society, 2014 –

Distinguished Fellow, Becker Friedman Institute for Research in Economics, 2012 –

Economic Theory Fellow, Society for the Advancement of Economic Theory, 2012 –

Member, Board of Advisors, John Templeton Foundation, 2011 - 2013

Member, MIT Press Editorial Board, 2010 –

Research Associate, National Bureau of Economic Research, 2009 –

Research Affiliate, Center on Demography and Economics of Aging, 2009–

Founding Member and Fellow, Bureau for Research and Economic Analysis of Development (BREAD), 2002 – 2009

Board Member, CEMFI, 2004 – 2009

Director of Graduate Program, Economics Department, University of Chicago, 2000 – 2001

Research Associate, Academic Research Centers, National Opinion Research Center (NORC), 1999-

Advisory Editor, *Macroeconomic Dynamics*, 1997 –

Executive Board, and Assistant Director, Population Research Center, NORC – 1997-2002

Director of Admissions, Economics Department, University of Chicago, 1992 – 2000

Panel Member of the National Science Foundation, Economics, 1989 – 1991

Editor, *Journal of Political Economy*, 1987 – 1989

Visiting Scientist, International Crops Research Institute of the Semi-Arid Tropics (ICRISAT), India, July 1987, December 1989, July 1990

Consultant, Federal Reserve Bank of Chicago, Comptroller of the Currency, Inter-American Development Bank, World Bank, International Monetary Fund, BANSEFI, Banco de España

FELLOWSHIPS/ HONORS/ RESEARCH GRANTS

Samuel Tak Lee MIT Real Estate Entrepreneurship Laboratory (STL Lab) for "Real Estate Industry, Financial Markets, and Economic Development" (2015-2017). Principal Investigator.

Centre for Economic Policy Research (CEPR) and the Department for International Development (DFID) through the research initiative 'Private Enterprise Development in Low-Income Countries' (PEDL) for "Measuring and Modelling Market Frictions and their Interaction as a Determinant of Aggregate Sector Performance" (2013 – 2016). Principal Investigator.

MIT International Science & Technology Initiatives (MISTI) grant, for "Using Economic Models to Explore Financial Growth and Intermediation in Brazil" (2012 – 2014). Principal Investigator.

Citigroup Financial Insights Project grant, MIT, for "Data Mining Techniques, GIS, and Interactive Database for Financial Institutions In Emerging Markets" (2011 – 2013). Principal Investigator.

Bill and Melinda Gates Foundation grant, for "Consortium on Financial Systems and Poverty at the University of Chicago" (2009-2013). Faculty Director and Principal Investigator.

National Institute of Child Health and Human Development (NICHD) grant, for "Study of Risk, Insurance, and the Family" (1991-1994; 1995-1999; 2000-2004; 2005-2006; 2007-2011; 2012-2018). Principal Investigator.

John Templeton Foundation grant, for "Discovering the Power of Free Enterprise to Create Wealth and Alleviate Poverty Through a New Applied General Equilibrium Enterprise Economics (AGE3)" (2007-2011). Principal Investigator.

National Science Foundation grants, for "Growth, Crisis & Evaluation of Financial Systems: Evaluation of Financial Structure" (2003 – 2010); "Growth, Crisis, and the Evaluation of

Financial Systems: Micro Underpinnings for Macro Models" (2000-2004); "Credit, Insurance, and Impediments to Trade in Theory and Actual Economies" (1993 – 1996); "Insurance and Incentives in Poor High Risk Economies" (1990-1993); "Pareto Optimal Organizations and Allocations with Private Information, Limited Communication, and other Impediments to Trade: (1987-1990); "Pareto Optimal and Competitive Equilibrium Allocations with Private Information and Limited Communication" (1984-1987); "Optimal and Equilibrium Allocations with Private Information" (1980-1984); "Resource Allocation Under Asymmetric Information" with Milton Harris (1979-1980).

Global Association of Risk Professionals (GARP) Risk Management Research Program award, for "Design, Take-up and Impact of Rainfall Insurance: Evidence from India" (2007-2010). Principal Investigator.

National Institutes of Health grant, for "Interdisciplinary Training in Demography" (2001-2006). Principal Investigator.

The Mellon Foundation grants, for training program through the Population Research Center at NORC at the University of Chicago (1997). Principal Investigator.

The Rockefeller Foundation grant, for "High-Yielding Rice Varieties in Northern Thailand" (1989-1990).

Visiting Scientist, International Crops Research Institute of the Semi-Arid Tropics (ICRISAT), India, July 1987, December 1989, and July 1990.

Visitor, World Bank, Population and Human Resources, August 1991.

National Center, for Super Computing grant (1988-1990).

The Mellon Foundation grant to the Department of Economics, for graduate student fellowships related to Field Research and Area Studies. Administrator.

Alfred P. Sloan Foundation grant to sponsor a workshop in Transactions Costs and Related Conceptual Developments Linking Theory to Actual Markets, awarded to Carnegie-Mellon University on a proposal on behalf of the economics faculty (1984). Project Director.

The Center for the Study of Futures Markets grant, Graduate School of Business, Columbia University, "Theories of Contract Design and Market Organization as Conceptual Bases for Understanding Futures Markets".

BOOKS

Chronicles from the Field: The Townsend Thai Project, with Sombat Sakunthasathien and Rob Jordan. Cambridge: MIT Press, 2013.

Financial Systems in Developing Economies: Growth, Inequality and Policy Evaluation in Thailand. Oxford/New York: Oxford University Press, 2011.

Households as Corporate Firms: An Analysis of Household Finance Using Integrated Household Surveys and Corporate Financial Accounting. Econometric Society Monograph Series, with Krislert Samphantharak. Cambridge; New York: Cambridge University Press, 2009.

The Medieval Village Economy: A Study of the Pareto Mapping in General Equilibrium Models. New Jersey: Princeton University Press, 1993.

Financial Structure and Economic Organization: Key Elements and Patterns in Theory and History. Oxford: Basil Blackwell, April 19, 1990.

PUBLICATIONS

"Risk and Return in Village Economies," with Krislert Samphantharak, forthcoming in *American Economic Journal: Microeconomics*, 2017; see also NBER Working Paper No. 19738, 2013.

"Integrated Household Surveys: An Assessment of U.S. Methods and an Innovation," with Krislert Samphantharak and Scott Schuh, *Economic Inquiry*, 56 (1): 50–80, 2018.

"Economic Development, Flow of Funds, and the Equilibrium Interaction of Financial Frictions," with Benjamin Moll and Victor Zhorin, *Proceedings of the National Academy of Sciences*, 114 (24): 6176-6184, 2017; also as "Financial Obstacles and Inter-Regional Flow of Funds" in NBER Working Paper No. 19618, 2013.

"Human Capital Acquisition and Occupational Choice: Implications for Economic Development," with Marti Mestieri and Johanna Schauer, *Review of Economic Dynamics*, 25 (April): 151-186, 2017; also CEPR Discussion Paper No. 11825, 2017.

"Village and Larger Economies: The Theory and Measurement of the Townsend Thai Project," *Journal of Economic Perspectives*, 30 (4): 199-220, 2016.

"Dynamic Financial Constraints: Distinguishing Mechanism Design from Exogenously Incomplete Regimes," with Alexander Karaivanov, *Econometrica*, 82 (3, May), 887–959, 2014; also NBER Working Paper No. 19617, 2013.

"Heterogeneity and Risk-Sharing in Village Economies," with Pierre-Andre Chiappori, Krislert Samphantharak, and Samuel Schulhofer-Wohl, *Quantitative Economics*, 5 (1, March): 1–27, 2014; Federal Reserve Bank of Minneapolis Research Department Staff Report #483, June 2013.

"An Evaluation of Financial Institutions: Impact on Consumption and Investment using Panel Data and the Theory of Risk-Bearing," with Mauro Alem, *Journal of Econometrics*, 183 (1) 91-103, 2014.

"The Great Equalizer: Health Care Access and Infant Mortality in Thailand," with Jonathan Gruber and Nathaniel Hendren *American Economic Journal: Applied Economics,* 6(1): 91–107, 2014.

"Barriers to Household Risk Management: Evidence from India," with Shawn Cole, Xavier Gine, Jeremy Tobacman, Petia Topalova, James Vickery, *American Economic Journal: Applied Economics*, 5(1): 104–135, 2013; also, Federal Reserve Bank of New York Staff Report No. 373, May 2009; also Harvard Business School Working Paper 09-116.

"Accounting for the Poor: The T.W. Schultz Lecture," *American Journal of Agricultural Economics*, 95 (5): 1196-1208, 2013.

"Microinsurance: A Case Study of the Indian Rainfall Index Insurance Market," with Xavier Gine, Lev Menand, and James Vickery, in Ghate, Chetan (ed.) Handbook of the Indian Economy , 2012: Oxford University Press, pp. 167-194.; also, World Bank Policy Research Working Paper #5459, October 2010.

"Village Economic Accounts: Real and Financial Intertwined," with Archawa Paweenawat, *American Economic Review Papers and Proceedings*, 102 (3): 441–446, 2012.

"Kinship and Financial Networks, Formal Financial Access and Risk Reduction," with Cynthia Kinnan, *American Economic Review Papers and Proceedings*, 102 (3): 289–293, 2012.

"Measuring the Return on Household Enterprise: What Matters Most for Whom?" with Krislert Samphantharak, *Journal of Development Economics*, 98 (1): 58-70, 2012.

"The Impact of Credit on Village Economies," with Joseph P. Kaboski, *American Economic Journal: Applied*, 4 (2): 98–133, 2012.

"Micro-insurance: A Case Study of the Indian Rainfall Insurance Market," with Xavier Gine, James Vickery, and Lev Menand, in Ghate, Chetan (Ed.) The Handbook of the Indian Economy. New York: Oxford University Press, pp. 167-194, 2012.

"The Geographic Concentration of Enterprise in Developing Countries," with John Felkner, *Quarterly Journal of Economics*, 126 (4): 2005-2061, 2011.

"A Structural Evaluation of a Large-Scale Quasi-Experimental Microfinance Initiative," with Joseph P. Kaboski, *Econometrica*, 79 (5), 2011: 1357-1406; also BREAD Working Paper No. 194, November 2008.

"Information-Constrained Optima with Retrading: An Externality and Its Market-Based Solution," with Weerachart T. Kilenthong, *Journal of Economic Theory*, 146 (3), 2011: 1042-1077.

"Wealth Accumulation and Factors Accounting for Success," with Anan Pawasutipaisit. *Journal of Econometrics*, 161(1), March 2011: 56-81.

"Financial Structure and Economic Welfare: Applied General Equilibrium Development Economics," in Kenneth Arrow and Timothy Bresnahan (Eds.) *Annual Review of Economics, Vol. 2, 2010*. Palo Alto, CA: Annual Reviews, 2010, pp. 507-546.

"Welfare Gains from Financial Liberalization," with Kenichi Ueda. *International Economic Review*, 51 (3): 553-597, 2010.

"Monetary Theory and Electronic Money: Reflections on the Kenyan Experience," with William Jack and Tavneet Suri, *Economic Quarterly – Federal Reserve Bank of Richmond*, 96, no. 1 (2010): 83-122.

"Rainfall Insurance in Semi-Arid India: Contract Design, Household Participation and Future Prospects," with Xavier Gine and James Vickery, in Tang, Kenny, and Lorraine Tang (eds.) Weather Risk Management: A Guide for Corporations, Hedge Funds and Investors. London: Risk Books, 2010

"Measuring the Impact of Financial Intermediation: Linking Contract Theory to Econometric Policy Evaluation," with Sergio Urzua. *Macroeconomic Dynamics,* 13 (S2) 268-316, 2009.

"Impact of Climate Change on Rice Production in Thailand," with John Felkner and Kamilya Tazhibayeva. *American Economic Review* 99, no. 2 (May 2009): 1-10.

"Patterns of Rainfall Insurance Participation in Rural India," with Xavier Gine and James Vickery, *World Bank Economic Review* 22, no. 3 (May 2008): 539-566.

"Endogenous Groups and Dynamic Selection in Mechanism Design," with Gabriel Madeira. *Journal of Economic Theory* 142, no. 1 (September 2008): 259-93.

"Growth and Inequality: Model Evaluation Based on an Estimation-Calibration Strategy," with Hyeok Jeong. *Macroeconomic Dynamics* 12, Supplement S2 (September 2008): 231-84.

"Introduction to Macroeconomic Dynamics Special Issue: Inequality." *Macroeconomic Dynamics* 12, Supplement S2 (September 2008): 149-53.

“Statistical Analysis of Rainfall Insurance payouts in Southern India,” with Xavier Gine and James Vickery. *American Journal of Agricultural Economics* 89, no. 5 (December 2007): 1248-54. Also World Bank Policy Research Working Paper No. 4426, 2007.

“Sources of TFP Growth: Occupational Choice and Financial Deepening,” with Hyeok Jeong. *Economic Theory Special Edition Honoring Edward Prescott* 32, no. 1 (July 2007): 179-221.

“Using Repayment Data to Test Across Models of Joint Liability Lending,” with Christian Ahlin. *Economic Journal* 117 (February 2007): F11-F51.

“Selection Into and Across Credit Contracts: Theory and Field Research,” with Christian Ahlin. *Journal of Econometrics* 136, Issue 2 (February 2007): 665-98.

“Firms as Clubs in Walrasian Markets with Private Information,” with Edward Simpson Prescott. *Journal of Political Economy* 114, no. 4 (August 2006): 644-71.

“Financial Markets and Poverty: An Algorithm for Policy-based Research and Research-based Policy,” in <u>Financial Services and Poverty Reduction in Latin America and the Caribbean</u> Luis Tejerina, César Bouillon and Edgardo Demaestri (Eds.) . Washington DC: Inter-American Development Bank, 2006, pp. 17-60.

“Distinguishing Limited Liability from Moral Hazard in a Model of Entrepreneurship,” with Anna L. Paulson and Alex Karaivanov. *Journal of Political Economy* 114, no. 1 (February 2006): 100-44.

“Credit, Intermediation and Poverty Reduction.” In *Understanding Poverty*, edited by Abhijit Banerjee, Roland Benabou, Dilip Mookherjee, 1-8. New York: Oxford University Press, 2006.

“Dynamic Mechanism Design with Hidden Income and Hidden Auctions,” with Matthias Doepke. *Journal of Economic Theory* 126 (2006) 235-85.

“Financial Deepening, Inequality, and Growth: A Model-Based Quantitative Evaluation,” with Kenichi Ueda. *Review of Economic Studies* 73, Issue 1 (January 2006): 251-93.

“Private Information and Intertemporal Job Assignments,” with Edward Simpson Prescott. *Review of Economic Studies* 73 (2006): 531–48.

“Financial constraints and entrepreneurship: Evidence from the Thai financial crisis,” with Anna L. Paulson. In *Economic Perspectives,* Third Quarter 29, 34-48. Federal Reserve Bank of Chicago, 2005.

“Networks and Finance in Ethnic Neighborhoods,” Chapter 7 in *Credit Markets for the Poor*, edited by Patrick Bolton and Howard Rosenthal, 179-98. New York: Russell Sage Foundation, 2005.

“Policies and Impact: An Evaluation of Village-Level Microfinance Institutions,” with Joseph P. Kaboski. *Journal of the European Economic Association* 3, no. 1 (January 2005): 1-50.

“Sampling design for an integrated socioeconomic and ecological survey by using satellite remote sensing and ordination,” with Michael W. Binford and Tae Jeong Lee. *Proceedings of the National Academy of Sciences* 101, no. 31 (August 3, 2004): 11517-22.

“Entrepreneurship and financial constraints in Thailand,” with Anna L. Paulson. *Journal of Corporate Finance* 10 (2004): 229-62.

“Evaluation of Financial Liberalization: A general equilibrium model with constrained occupation choice,” with Xavier Gine. *Journal of Development Economics* 74 (2004): 269-304.

“Micro Credit and Mechanism Design.” *Journal of the European Economic Association* 1, issue 2 (2003): 468-47.

“Collective Organizations versus Relative Performance Contracts: Inequality, Risk Sharing, and Moral Hazard,” with Edward Prescott. *Journal of Economic Theory* 103, Issue 2 (April 2002): 282-310.

“The Credit Risk Contingency System of an Asian Development Bank,” with Jacob Yaron. *Economic Perspectives*, Third Quarter, 25, 31-48. Federal Reserve Bank of Chicago, 2001

“Liquidity Constraints and Incentive Contracts,” with Andreas Lehnert and Ethan Ligon. *Macroeconomic Dynamics* 3, issue 1 (March 1999): 1-47.

“Small Business Finance in Two Chicago Minority Neighborhoods,” with Paul Huck, Sherrie L. W. Rhine and Philip Bond. *Economic Perspectives*, Second Quarter, 23, 46-62. Federal Reserve Bank of Chicago, 1999.

“Mechanism Design and Village Economies: From Credit, to Tenancy, to Cropping Groups,” with Rolf Mueller. *Review of Economic Dynamic*s 1, no. 1 (January 1998): 119-72.

“General Equilibrium Models of Financial Systems: Theory and Measurement in Village Economies,” with Youngjae Lim. *Review of Economic Dynamics* 1, no. 1 (January 1998): 59-118.

“Microenterprise and Macropolicy,” *Advances in Economics and Econometrics: Theory and Applications, Seventh World Congress, Volume II*, edited by David M. Kreps and Kenneth F. Wallis. Cambridge University Press, 1997.

“Discrimination in Financial Services: How Should We Proceed?” *Journal of Financial Services Research* 11 (February and April 1997): 215-17.

“Formal and Informal Financial Services,” *Financial Access in the 21st Century, Proceedings of a Forum*, 17-23. Comptroller of the Currency, Washington, D.C., February 11, 1997.

“Formal and Informal Financing in a Chicago Ethnic Neighborhood” with Philip Bond. *Economic Perspectives* 20, no. 4: 3-27. Federal Reserve Bank of Chicago, 1996.

“Consumption Insurance: An Evaluation of Risk-Bearing Systems in Low-Income Economies.” *Journal of Economic Perspectives* 9, no. 3 (Summer 1995): 83-102.

“Financial Systems in Northern Thai Villages.” *The Quarterly Journal of Economics* 110, no. 4 (November 1995): 1011-46.

“Risk and Insurance in Village India,” *Econometrica* , 62, no. 3 (May 1994): 539-91.

“Community Development Banking and Financial Institutions Act: A Critique with Recommendations.” In *The Declining Role of Banking, Proceedings of The 30th Annual Conference on Bank Structure and Competition*, 538-46. Federal Reserve Bank of Chicago, May 1994.

“Targeting Credit and Insurance: Efficiency, Mechanism Design, and Program Evaluation,” with Mansoora Rashid. Discussion paper #47, Education and Social Policy Department, World Bank, November 1994.

“Asymmetric Information in General Equilibrium Models.” In *General Equilibrium 40th Anniversary Conference*, 126-34. CORE, June 3-5, 1993.

“Understanding the Structure of Village and Regional Economies.” In *Contract Economics*, edited by Lars Werin and Hans Wijkander, 114-48. Oxford: Basil B Blackwell, 1992.

“Computing Multiperiod Information Constrained Optima,” with Christopher Phelan. *Review of Economic Studies* 58, no. 5 (October 1991): 853-81.

“Comment on Paper by Davis and Haltiwanger.” In *NBER Macroeconomics Annual 1990*, edited by Olivier Jean Blanchard and Stanley Fischer. Cambridge, MA: MIT Press, 1990.

“Currency and Credit in a Private Information Economy.” *Journal of Political Economy* 97, no. 6 (December 1989): 1323-1345.

“Models as Economies.” The Frank Paish Lecture. *The Economic Journal* 98, no. 390 (Supplement: Conference Papers, March 1988): 1-24.

“Information Constrained Insurance: the Revelation Principle Extended.” *Journal of Monetary Economics* 21, issues 2-3 (March/May 1988): 411-50.

“Asset Return Anomalies in a Monetary Economy.” *Journal of Economic Theory* 41, no. 5 (April 1987): 219-47.

“Circulating Private Debt: An Example with a Coordination Problem,” with Neil Wallace. In *Contractual Arrangements for Intertemporal Trade*, edited by Edward C. Prescott and Neil Wallace, 105-20. Minneapolis: University of Minnesota Press, 1987.

“Taking Pure Theory to Data: Arrow’s Seminal Contribution.” In *Arrow and the Ascent of Modern Economic Theory*, edited by George Feiwel. New York University Press, May 1, 1987.

“Arrow-Debreu Programs as Microfoundations for Macroeconomics.” In *Advances in Economic Theory: The Fifth World Congress*, edited by Truman F. Bewley. Cambridge University Press, 1987.

“Economic Organization with Limited Communication.” *American Economic Review* 77, no. 5 (December1987): 954-70.

“Financial Structures as Communication Systems.” Chapter 5 in *Technological Innovations and the Monetary Economy*, edited by Collin Lawrence and Robert Shay, 163-78. Ballinger, subsidy of Harper & Row, April 1986.

“General Competitive Analysis in an Economy with Private Information,” with Edward C. Prescott. *International Economic Review* 25, no. 1 (February 1984): 1-20.

“Pareto Optima and Competitive Equilibria with Adverse Selection and Moral Hazard,” with Edward C. Prescott. *Econometrica* 52, no. 1 (January 1984): 21-45.

“Theories of Intermediated Structures,” *Carnegie-Rochester Conference Series on Public Policy* 18 (1983): 221-72.

“Equilibrium Theory with Disparate Expectations and Learning: Some Issues and Methods.” In *Individual Forecasting and Aggregate Outcomes: ‘Rational Expectations’ Examined*, edited by Edmund S. Phelps and Roman Frydman, 169-97. Cambridge University Press, 1983.

“Forecasting the Forecasts of Others.” *Journal of Political Economy* 91, no. 4 (August, 1983): 546-87.

“Financial Structure and Economic Activity.” *American Economic Review* 73, no. 5 (December 1983): 895-911.

“Optimal Multiperiod Contracts and the Gain from Enduring Relationships under Private Information.” *Journal of Political Economy* 90, no. 6 (December 1982): 1166-86.

“Theories of Contract Design and Market Organization: Conceptual Bases for Understanding Futures Markets.” Prepared for the *Conference on the Industrial Organization of Futures Markets: Structure and Conduct*. Columbia University, November 1982 (Lexington Books).

“Resource Allocation under Asymmetric Information,” with Milton Harris. *Econometrica ,* 49, no. 1 (January 1981): 33-69.

“Equilibrium under Uncertainty: Multi-Agent Statistical Decision Theory,” with Edward C. Prescott. In *Studies in Bayesian Econometrics and Statistics in Honor of Harold Jeffreys*, edited by Arnold Zellner, 169-94. North-Holland, 1980.

“Models of Money with Spatially Separated Agents.” In *Models of Monetary Economies*, edited by John Kareken and Neil Wallace, 265-303. Federal Reserve Bank of Minneapolis, 1980.

“Optimal Contracts and Competitive Markets with Costly State Verification.” *Journal of Economic Theory* 21, no. 2 (October 1979): 265-93.

“On the Optimality of Forward Markets.” *American Economic Review* 68, no. 1 (March1978): 54-56.

“Market Anticipations, Rational Expectations, and Bayesian Analysis.” *International Economic Review* 19, no. 2 (June 1978): 481-94.

“Intermediation with Costly Bilateral Exchange.” *Review of Economic Studies* 45, no. 3 (October 1978): 417-25.

“The Eventual Failure of Price Fixing Schemes.” *Journal of Economic Theory* 14, no. 3 (February 1977): 190-99.

“Allocation Mechanisms, Asymmetric Information, and the Revelation Principle,” with Milton Harris. In *Issues in Contemporary Microeconomics and Welfare,* edited by George R. Feiwel, 279-94. London: Macmillan Co., 1985 (1975).

WORKING PAPERS

“Family Firms, Bank Relationships and Financial Constraints: A Comprehensive Score Card” with Alexander Karaivanov and Jesús Saurina, 2016.

“Curbing Shocks to Corporate Liquidity: The Role of Trade Credit,” with Niklas Amberg, Tor Jacobson and Erik von Schedvin. NBER Working Paper No. 22286 (also Sveriges Riksbank Working Paper Series No. 320) 2016.

“The Economics of Bank Supervision,” with Thomas M. Eisenbach and David O. Lucca, NBER Working Paper No. 22201 (also FRBNY Staff Report No. 769), March 2016.

“A Market Based Solution for Fire Sales and Other Pecuniary Externalities,” with Weerachart T. Kilenthong, NBER Working Paper No. 22056, 2016.

“Distinguishing Constraints on Financial Inclusion and Their Impact on GDP, TFP and Inequality,” with Era Dabla-Norris, Yan Ji, and D. Filiz Unsal, Working Paper, July 2015; see also CEPR Discussion Paper No. DP11742, January, 2017; see also NBER Working Paper No. 20821, 2015.

“Forecasting When it Matters: Evidence from Semi-Arid India,” with Xavier Gine and James Vickery, working paper, 2015.

“Villages as Small Open Economies: Disentangling Real and Financial Factors,” with Archawa Paweenawat, 2014.

“Spatial Competition among Financial Service Providers and Optimal Contract Design,” with Victor Zhorin, 2014.

“A Market Based Solution to Price Externalities: A Generalized Framework,” with Weerachart T. Kilenthong, NBER Working Paper No. 20275, 2014.

“Segregated Security Exchanges with Ex Ante Rights to Trade: A Market-based Solution to Collateral-Constrained Externalities,” with Weerachart T. Kilenthong, NBER Working Paper No. 20086, 2014.

“The Impact of Climate Change on Rice Yields: Heterogeneity and Uncertainty,” with Kamilya Tazhibayeva, 2012.

“Sharing Wage Risk,” with S. Bonhomme, Pierre-Andre Chiappori and Hiroyuki Yamada, working paper, 2012.

“Ownership Matters: the Geographical Dynamics of BAAC and Commercial Banks in Thailand,” with Juliano Assuncao and Sergey Mityakov, Working Paper, 2012.

“Commodity Price Shocks, Consumption and Risk Sharing in Rural Thailand,” with James Vickery. Chapter 3 in Vickery, James, *Essays in Banking and Risk* Management, Ph.D. dissertation, Massachusetts Institute of Technology, 2004.