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Education

Ph.D. Economics, University of Minnesota, 2001
M.A. Economics, Hitotsubashi University, Tokyo, Japan, 1994
B.A. Economics, Hitotsubashi University, Tokyo, Japan, 1992

Research Interests

Payment Markets, Payment Security, Consumer Behavior, Industrial Organization, Public Finance, Applied Microeconomics.

Employment

Senior Policy Advisor, Federal Reserve Bank of Kansas City, 2023-present
Payments Policy Advisor and Economist, Federal Reserve Bank of Kansas City, 2018-2023
Senior Economist, Federal Reserve Bank of Kansas City, 2003-2018
Economist, Federal Reserve Bank of Kansas City, 2001-2003.

Journal Publications

“Regressive Effects of Payment Card Pricing and Merchant Cost Pass-through in the United States and Canada” with Marie-Hélène Felt, Joanna Stavins, and Angelika Welte, *Journal of Banking and Finance*, 2023, 154.

“Innovation, Deregulation and the Life Cycle of a Financial Service Industry” with Bin Li and Zhu Wang, *Review of Economic Dynamics*, 2017, 26: 180-203.

“Quantifying the Impacts of Limited Supply: The Case of Nursing Homes” with Andrew Ching and Hui Wang, *International Economic Review*, 2015, 56: 1291-1322.

“Payment Card Rewards Programs and Consumer Payment Choice” with Andrew Ching *Journal of Banking and Finance*, 2010, 34: 1773-1787.

“Payment Card Interchange Fees and Merchant Service Charges – An International Comparison” *Lydian Payments Journal*, Vol. 1, Issue 3, January 2010.

“A Puzzle of Card Payment Pricing: Why Are Merchants Still Accepting Card Payments?” *Review of Network Economics*, Vol. 5, Issue 1 - March 2006.

“Technology Adoption and Consumer Payments: Evidence from Survey Data” with Elizabeth Klee, *Review of Network Economics*, Vol. 2, Issue 2 - June 2003.

“Uncertainty in Long-term Cares and Precautionary Saving” with Eiji Tajika, *Review of Economic Research*, Vol. 48, No. 3, July 1997 (in Japanese).

“Personal Pension Market and Adverse Selection – In the Case of National Pension Funds” with Eiji Tajika, *Review of Economic Research*, Vol. 47, No. 3, July 1996 (in Japanese).

“Japanese Annuity Market – Why is the Market Not Transparent?” with Eiji Tajika, *The Quarterly of Social Security Research*, Vol. 31, No. 2, Autumn 1995 (in Japanese). (The article also appeared in *Review of Social Policy*, No. 6, 1997.)

“Tax and Social Security in Japan: A Lifetime Perspective?” with Eiji Tajika, *Aging and Work*, Vol. 14, No. 2, August 1995 (in Japanese).

Book Publications

“Nonbanks and Risk in Retail Payments: EU and U.S.” with Terri Bradford, Christian Hung, Simonetta Rosati, Richard J. Sullivan, Zhu Wang and Stuart E. Weiner, In: M. Eric Johnson (eds) *Managing Information Risk and the Economics of Security*, Springer, Boston, MA, 2009.

“A Guide to the ATM and Debit Card Industry: 2006 Update” with Richard J. Sullivan and Stuart E. Weiner, 2006.

“A Guide to the ATM and Debit Card Industry” with Richard J. Sullivan and Stuart E. Weiner, 2003.

“A Plan for Pension Reform: An Insurance Perspective” with Eiji Tajika and Yoshihiro Kaneko, 1996 (in Japanese).

Federal Reserve Publications

“Which Types of Unbanked Households Are More (or Less) Likely to Open a Bank Account” with Aditi Routh and Ying Lei Toh, Federal Reserve Bank of Kansas City Research Working Paper, RWP 23-08, 2023.

“Data Aggregators: The Connective Tissue for Open Banking” with Julian Alcazar, Federal Reserve Bank of Kansas City *PSR Briefing*, August 2022.

“Assessing the Case for Retail CBDCs: Central Banks’ Considerations” with Ying Lei Toh, Federal Reserve Bank of Kansas City *PSR Briefing*, May 2022.

“Digital, Financial, and Health Insurance Exclusion Experienced by Low-Income Households” with Rebecca Ruiz, Federal Reserve Bank of Kansas City *PSR Briefing*, July 2021.

“Cash or Debit Cards? Payment Acceptance Costs for Merchants” Federal Reserve Bank of Kansas City *Economic Review* 2021, Vol.106, no.3.

“Distributional Effects of Payment Card Pricing and Merchant Cost Pass-through in the United States and Canada” with Marie-Hélène Felt, Joanna Stavins, and Angelika Welte, Federal Reserve Bank of Kansas City Research Working Paper, RWP 20-18, 2020.

“Remote Card Payment Fraud: Trends and Measures Taken in Australia, France, and the United Kingdom” Federal Reserve Bank of Kansas City *PSR Briefing*, November 2020.

“Delivering Benefits of Faster Payments to the Underserved” with Claire Greene and Joanna Stavins, Board of Governors of the Federal Reserve System *Consumer & Community Context*, Board 2020, Vol. 2, No.1.

“Mobile Banking Use and Consumer Readiness to Benefit from Faster Payments” with Ying Lei Toh, Federal Reserve Bank of Kansas City *Economic Review*, First Quarter 2020.

“Payment Card Fraud Rates in the United States Relative to Other Countries since Migrating to Chip Cards” Federal Reserve Bank of Kansas City *Economic Review*, Fourth Quarter 2019.

“Developments of QR Code-Based Mobile Payments in East Asia” with Terri Bradford and Ying Lei Toh, Federal Reserve Bank of Kansas City *PSR Briefing*, June 2019.

“The Initial Effects of EMV Migration on Chargebacks in the United States” with Zach Markiewicz and Sabrina Minhas, Federal Reserve Bank of Kansas City Research Working Paper, RWP 18-10, 2018.

“Who Are the Unbanked? Characteristics Beyond Income” with Sabrina Minhas, Federal Reserve Bank of Kansas City *Economic Review*, Second Quarter 2018.

“Faster Payments: Market Structure and Policy Considerations” with Aaron Rosenbaum, Garth Baughman, Mark Manuszak, Kylie Stewart, and Joanna Stavins, Board of Governors of the Federal Reserve System *Finance and Economics Discussion Series* 2017-100, 2017.

“Access to Electronic Payments Systems by Unbanked Consumers” Federal Reserve Bank of Kansas City *Economic Review*, Third Quarter 2016.

“Chargebacks: Another Payment Card Acceptance Cost for Merchants” with Zach Markiewicz and Richard J. Sullivan, Federal Reserve Bank of Kansas City Research Working Paper, RWP 16-01, 2016.

“Driver of Choice? The Cost of Financial Products for Unbanked Consumers” with Josh Hanson and Jesse Leigh Maniff, Federal Reserve Bank of Kansas City Research Working Paper, RWP 15-15, 2015.

“The Economics of Retail Payments Security” with Tyler Moore and Richard J. Sullivan, Federal Reserve Bank of Kansas City International Payments Policy Conference Proceedings: *The Puzzle of Payments Security: Fitting the Pieces Together to Protect the Retail Payments System*, June 2015.

“Faster Payments in the United States: How Can Private Sector Systems Achieve Public Policy Goals?” Federal Reserve Bank of Kansas City Research Working Paper, RWP 15-03, 2015.

“Recurrent Overdrafts: A Deliberate Decision by Some Prepaid Cardholders?” with Emily Cuddy, Federal Reserve Bank of Kansas City Research Working Paper, RWP 14-08, 2014.

“Interchange Fees and Network Rules: A Shift from Antitrust Litigation to Regulatory Measures in Various Countries” with Jesse Leigh Maniff, Federal Reserve Bank of Kansas City *PSR Briefing*, October 2014.

“Mobile Payments: Merchants' Perspectives” with Terri Bradford, Federal Reserve Bank of Kansas City *Economic Review*, Second Quarter 2014.

“General Purpose Reloadable Prepaid Cards: Penetration, Use, Fees and Fraud Risks” with Emily Cuddy, Federal Reserve Bank of Kansas City Research Working Paper, RWP 14-01, 2014.

“Fees, Fraud and Regulation: Forces of Change in the Payment Card Industry” with Richard J. Sullivan, Federal Reserve Bank of Kansas City *PSR Briefing*, April 2013.

“The New Debit Card Regulations: Effects on Merchants, Consumers, and Payments System Efficiency” Federal Reserve Bank of Kansas City *Economic Review*, First Quarter 2013.

“The New Debit Card Regulations: Initial Effects on Networks and Banks” Federal Reserve Bank of Kansas City *Economic Review*, Fourth Quarter 2012.

“Discounts and Surcharges: Implications for Consumer Payment Choice” Federal Reserve Bank of Kansas City *PSR Briefing*, June 2012.

“Measuring the Costs of Retail Payments Methods” with William R. Keeton, Federal Reserve Bank of Kansas City *Economic Review*, Second Quarter 2012.

“Mobile Payments: What's in It for Consumers?” Federal Reserve Bank of Kansas City *Economic Review*, First Quarter 2012.

“Effects of Credit Scores on Consumer Payment Choice” with Joanna Stavins, Federal Reserve Bank of Kansas City Research Working Paper, RWP 12-03, 2012.

“Do U.S. Consumers Really Benefit from Payment Card Rewards?” Federal Reserve Bank of Kansas City *Economic Review*, First Quarter 2009.

“Product Innovation and Network Survival in the U.S. ATM and Debit Card Industry” with Zhu Wang, Federal Reserve Bank of Kansas City Research Working Paper, RWP 08-14, 2008.

“The Economics of Payment Card Fee Structure: Policy Considerations of Payment Card Rewards” Federal Reserve Bank of Kansas City Research Working Paper, RWP 08-08, 2008.

“The Economics of Payment Card Fee Structure: What Drives Payment Card Rewards?” Federal Reserve Bank of Kansas City Research Working Paper, RWP 08-07, 2008.

“The Economics of Payment Card Fee Structure: What is the Optimal Balance between Merchant Fee and Payment Card Rewards?” Federal Reserve Bank of Kansas City Research Working Paper, RWP 08-06, 2008.

“Developments in Interchange Fees in the United States and Abroad” with Terri Bradford, Federal Reserve Bank of Kansas City *PSR Briefing*, May 2008.

“Complex Landscapes: Mobile Payments in Japan, South Korea, and the United States” with Terri Bradford, Federal Reserve Bank of Kansas City *PSR Briefing*, September 2007.

“Nonbanks in the Payments System: European and U.S. Perspectives” with Dieter Reichwein, Simonetta Rosati, Terri Bradford, Nathan Halmrast, Richard J. Sullivan, Zhu Wang, and Stuart E. Weiner, Federal Reserve Bank of Kansas City 2007 International Payments Conference Proceedings: *Nonbanks in the Payments System: Innovation, Competition, and Risk*, Santa Fe, NM, May 2-4.

“Pricing and Welfare Implications of Payment Card Network Competition” Federal Reserve Bank of Kansas City Payments System Research Working Paper 06-03, 2006.

“Interchange Fees in Australia, the UK, and the United States: Matching Theory and Practice” with Stuart E. Weiner, Federal Reserve Bank of Kansas City *Economic Review*, Third Quarter 2006.

“Payment Card Rewards Programs and Consumer Payment Choice” with Andrew Ching, Federal Reserve Bank of Kansas City Payments System Research Working Paper 06-02, 2006.

“Network Competition and Merchant Discount Fee” Federal Reserve Bank of Kansas City Payments System Research Working Paper 05-04, 2005.

“Competition and Credit and Debit Card Interchange Fees: A Cross-Country Analysis” with Stuart E. Weiner, Federal Reserve Bank of Kansas City Payments System Research Working Paper 05-03, 2005.

“A Puzzle of Card Payment Pricing: Why Are Merchants Still Accepting Card Payments” Federal Reserve Bank of Kansas City Payments System Research Working Paper 04-02, 2004.

“Community Bank Access to Payment Card Networks: Has It Become More Expensive?” Federal Reserve Bank of Kansas City Payments System Research Working Paper 03-02, 2003.

“Technology Adoption and Consumer Payments: Evidence from Survey Data” with Elizabeth Klee, Federal Reserve Bank of Kansas City Payments System Research Working Paper 02-01, 2002.

Referee Service

American Economic Review

Annals of Economics and Finance

B.E. Journal of Economic Analysis and Policy

Discussion Paper of the Institute for Monetary and Economic Studies of the Bank of Japan

Economic Bulletin

Economic Letters

International Journal of Central Banking

Journal of Banking and Finance

Journal of Behavioral and Experimental Economics

Journal of Economic Studies

Malaysian Journal of Economic Studies

Review of Network Economics