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EDUCATION:

<i>1990</i>	Ph.D., Agricultural Economics, University of Illinois at Urbana-Champaign
<i>1986</i>	M.S., Agricultural Economics, University of Illinois at Urbana-Champaign
<i>1982</i>	B.S., Agricultural Economics, National Taiwan University

EXPERIENCE:

<i>02/2000-Present</i>	Professor, Department of Economics, National Taipei University
<i>08/2007-07/2011</i>	Chairperson, Department of Economics, National Taipei University
<i>08/2005-07/2007</i>	Dean, Office of Research and Development Affairs, National Taipei University
<i>09/2004-07/2005</i>	Dean, Office of Academic Affairs, National Taipei University
<i>08/2003-08/2004</i>	Chief, Publication Section, Office of Academic Affairs, National Taipei University
<i>08/1998-01/2000</i>	Professor, Department of Economics, National Chung-Hsing University
<i>08/1992-07/1998</i>	Associate Professor, Department of Economics, National Chung-Hsing University
<i>01/1991-07/1992</i>	Post-doctoral Researcher, Department of Agricultural Economics, Purdue University
<i>08/1984-05/1990</i>	Research Assistant, Department of Agricultural Economics, University of Illinois at Urbana-Champaign
<i>07/1982-12/1983</i>	Research Assistant, Department of Agricultural Economics, National Taiwan University

RESEARCH FIELD:

Financial Economics, Applied Econometrics, Environmental Economics

TEACHING:

Introductory Econometrics (undergraduate course)
Financial Markets (1) (undergraduate course)
Theory and Practice of Futures Markets (undergraduate course)
Quantitative Methods (1) (graduate course)
Thesis Writings (graduate course)

PUBLICATIONS

A. JOURNAL ARTICLES

1. Liu, Shi-Miin and Sarahelen R. Thompson (1991), "The Price Adjustment Process and Efficiency of Grain Futures Markets Implied by Return Series of Various Time Intervals," *The Review of Futures Markets*, 10, 16-42. [Also (1991) Working Paper #216, Center for the Study of Futures Markets, Columbia University.]
2. Liu, Shi-Miin, Sarahelen R. Thompson and Paul Newbold (1992), "Impact of the Price Adjustment Process and Trading Noise on Return Patterns of Grain Futures," *The Journal of Futures Markets*, 12, 575-585. SSCI, JEL, EconLit
3. Greer, Thomas V., B. Wade Brorsen and Shi-Miin Liu (1992), "Slippage Costs in Order Execution for a Public Futures Fund," *The Review of Agricultural Economics*, 14, 281-288. JEL, EconLit
4. Liu, Shi-Miin (1993), "The American Futures Markets and the Relevant Empirical Findings," *Socioeconomic Law and Institution Review*, 12, 159-175. (In Chinese)
5. Liu, Shi-Miin, Virginia G. France and Sarahelen R. Thompson (1994), "Trading-hour and Day-of-the-Week Effects in Grain Futures Returns," *The Review of Futures Markets*, 13, 861-896.
6. Liu, Shi-Miin, B. Wade Brorsen, Charles M. Oellermann and Paul L. Farris (1994), "Forecasting the Nearby Basis of Live Cattle," *The Journal of Futures Markets*, 14, 259-273. SSCI, JEL, EconLit
7. Liu, Shi-Miin and B. Wade Brorsen (1995), "GARCH-Stable as a Model of Futures Price Movements," *The Review of Quantitative Finance and Accounting*, 5, 155-167. JEL, EconLit
8. Liu, Shi-Miin and B. Wade Brorsen (1995), "Maximum Likelihood Estimation of a GARCH-Stable Model," *The Journal of Applied Econometrics*, 10, 273-285. SSCI, JEL, EconLit
9. Liu, Shi-Miin and Fong-Ruey Ga (1996), "Linear and Nonlinear Variations of Taiwan's Stock Index Returns," *Taipei Economic Inquiry*, 34(1), 73-109. (In Chinese) TSSCI
10. Lai, Hong-Chung and Shi-Miin Liu (1996), "Long-Term Equilibrium and Causality Relationship Among Interest Rate, Exchange Rate, and Stock Price: An Application of Cointegration Analysis," *Security Finance*, 49, 23-42. (In Chinese)
11. Chiou, I-Der, Shi-Miin Liu and Rua-Huan Tsaih (1996), "Applying Neural Network Systems to Analyzing and Forecasting Taiwanese Stock Index," *Taipei Economic Inquiry*, 34(2), 171-200. (In Chinese) TSSCI
12. Lai, Hong-Chung and Shi-Miin Liu (1997), "Long-Term Equilibrium Relationship and Linear Causality of Taiwan's Stock Price and Volume: A Cointegration Analysis," *Socioeconomic Law and Institution Review*, 19,

311-337. (In Chinese)

13. Chou, Feng-Ing, Shi-Miin Liu and Yunchang J. Bor (1998), "Impact of Economic Shocks on Long- Term Energy Demand: A Study of Policy Simulation," *Taipei Economic Inquiry*, 35(2), 139-162. (In Chinese) TSSCI
14. Chen, Hsiao-Chi and Shi-Miin Liu (1999), "Optimal Pollution Control Policies Under Asymmetric Information: A Model of Mechanism-Design Approach," *Taipei Economic Inquiry*, 36(1), 1-23. TSSCI
15. Liu, Shi-Miin and Hsiao-Fen Lin (2000), "Empirical Models and Fractional Cointegration Analysis of Taiwan's Purchasing Power Parity Relationships with Its Major Trading Partners," *Socioeconomic Law and Institution Review*, 26, 309-345. (In Chinese)
16. Liu, Shi-Miin, Wen-Jeh Tseng and Hsiao-Chi Chen (2001), "Market Liquidity Measurement in Quote-Driven Trading Systems: An Empirical Analysis Using Data from NYSE and Nasdaq of the United States," *Taipei Economic Inquiry*, 37(2), 1-39. (In Chinese) TSSCI
17. Liu, Shi-Miin (2002), "Forward Pricing Efficiency and Risk Premium of Stock Indices Futures in Pacific-Rim Countries: A Fractional (Co)integration Analysis," *Taipei Economic Inquiry*, 38(2), 165-201.
18. Liu, Shi-Miin and Chih-Hsien Chou (2003), "Parities and Spread Trading in Gold and Silver Markets: A Fractional Cointegration Analysis," *Applied Financial Economics*, 13, 879-891. JEL, EconLit
19. Chen, Hsiao-Chi and Shi-Miin Liu (2005), "Dynamic Incentive Contracts Under No-Commitment to Periodic Auditing and A Non-Retrospective Penalty System," *Journal of Economics*, 85(2), 107-139. SSCI, JEL, EconLit
20. Chen, Hsiao-Chi and Shi-Miin Liu (2005), "Tradeable-Permit Pollution Control Systems With and Without Commitment to Auditing," *Environmental Economics and Policy Studies*, 7(1), 15-37. JEL, EconLit, Scopus
21. Liu, Shi-Miin and Hsiao-Chi Chen (2006), "Microstructures, Price Dominance, and Liquidity Measurement of Spot and Futures Market," *Journal of Financial Studies (財務金融學刊)*, 14:4, 59-109. TSSCI
22. Chen, Hsiao-Chi and Shi-Miin Liu (2007), "Dynamic Incentive Contracts in Multiple Penalty Systems with No-Commitment to Tenure-Track Auditing," *Journal of Economics*, 90(3), 255-294. SSCI, JEL, EconLit
23. Lin, Jing-Yi and Shi-Miin Liu (2007), "Nonlinear Relationships Among Taiwanese Stock Price, Exchange Rate, and Foreign Investment: An Application of Multivariate Threshold Models," *Journal of Financial Studies*, *Journal of Financial Studies*, 15(4), 103-132. (In Chinese) TSSCI
24. Chen, Hsiao-Chi and Shi-Miin Liu (2008), "Incentive Contracts under Imperfect Auditing," *The Manchester School*, 76 (2), 131-159. SSCI, JEL, EconLit
25. Liu, Shi-Miin and Han-Liang Cheng (2008), "Threshold Relationships Among Taiwanese Stock Price Index, Margin, and Short Sale: Behavioral Changes of Small Investors During Economic Prosperity and Recession Periods," *Taiwan Economic Forum*, 6(12), 36-63. (In Chinese)

26. Chen, Hsiao-Chi and Shi-Miin Liu (2009), "An Emission Tax Pollution Control System with Imperfect Monitoring," *Environmental Economics and Policy Studies*, 10(1), 21-40. JEL, EconLit, Scopus
27. Chen, Hsiao-Chi and Shi-Miin Liu (2010), "Spreads, Depths, and Optimal Submission Strategies of Market and Limit Orders," *Taipei Economic Inquiry*, 46(1), 1-67. TSSCI
28. Lee, Tsung-Chen, Hsiao-Chi Chen and Shi-Miin Liu (2013), "Optimal Strategic Regulations in International Emissions Trading under Imperfect Competition," *Environmental Economics and Policy Studies*, 15(1), 39-57, JEL, EconLit, Scopus
29. Chen, Hsiao-Chi, Shi-Miin Liu and Chiung-Yun Chang (2013), "Commitment or No-Commitment to Monitoring in Emission Tax Systems," *Environmental Economics and Policy Studies*, 15(2), 171-188, JEL, EconLit, Scopus
30. Lee, Tsung-Chen, Hsiao-Chi Chen and Shi-Miin Liu (2013), "Optimal Intervention Policies in International Emissions Trading Considering Ancillary Benefits of Carbon Abatement," *Energy Studies Review*, 20(1), Article 3. JEL, EconLit
31. Chen, Hsiao-Chi and Shi-Miin Liu (2014), "Optimal Concession Contracts for Landlord Port Authorities to Maximize Fee Revenues," *International Journal of Shipping and Transport Logistics*, 6(1), 26-45. Impact factor 0.862, JCR Ranking: 23/30 in Transportation. SSCI, JEL, EconLit
32. Chen, Hsiao-Chi and Shi-Miin Liu (2015), "Optimal Concession Contracts for Landlord Port Authorities to Maximize Traffic Volumes," *Maritime Policy & Management*, 42(1), 11-25, 2015. Impact factor 1.309, JCR Ranking: 18/30 in Transportation. SSCI, JEL, EconLit
33. Lee, Tsung-Chen, Hsiao-Chi Chen and Shi-Miin Liu (2015), "Optimal Regulations and Efficiency Losses in Imperfectly Competitive International Emission Trading," *Strategic Behavior and the Environment*, 5(1), 61-85. JEL, EconLit
34. Chen, Hsiao-Chi, Yen-Hung Lin and Shi-Miin Liu (2015), "Optimal Concession Contracts for Port Authorities Under Price Competition of Terminal Operators," *International Journal of Shipping and Transport Logistics*, forthcoming. Impact factor: 0.862, JCR Ranking: 23/30 in Transportation. SSCI, JEL, EconLit
35. Chen, Hsiao-Chi, Paul Tae-Woo Lee, Shi-Miin Liu and Tsung-Chen Lee (2015), "Governments' Sequential Facility Investments and Ports' Pricing under Service Differentiation and Uncertainty," *International Journal of Shipping and Transport Logistics*, forthcoming. Impact factor 0.862, JCR Ranking: 23/30 in Transportation. SSCI, JEL, EconLit
36. Chen, Hsiao-Chi and Shi-Miin Liu (2015), "Should Ports Expand Their Facilities under Congestion and Uncertainty?" *Transportation Research Part B*, forthcoming. Impact factor 2.952. JCR Ranking: 3/30 in Transportation, 19/333 in Economics. SSCI, JEL, EconLit

B. CONFERENCE PAPERS

1. Liu, Shi-Miin and Sarahelen R. Thompson (August 1990), "The Price Adjustment Process and Efficiency of Grain Futures Markets Implied by Return Series of Various Time Intervals," Presented at the 1990 AAEA Annual Meeting, Vancouver, Canada. [Also (April 1990) presented at *Applied Commodity Price Analysis, Forecasting, and Market Risk Management* of the NCR-134 Conference, Chicago, IL.]
2. Liu, Shi-Miin, B. Wade Brorsen, Charles M. Oellermann and Paul L. Farris (April 1992), "Forecasting the Nearby Basis of Live Beef Cattle," *Applied Commodity Price Analysis, Forecasting, and Market Risk Management*, Proceedings of the NCR-134 Conference, pp. 231-245.
3. Liu, Shi-Miin, Virginia G. France and Sarahelen R. Thompson (December 1993), "Trading-hour and Day-of-the-Week Effects in Grain Futures Returns," Presented at the Chicago Board of Trade Research Seminar in Chicago, Illinois.
4. Liu, Chong-Jian, Tsu-Hsung Lin, Yi-Fei Juang and Shi-Miin Liu (October 1993), "The Total Factor Productivity of the Telecommunications Industry in Taiwan," Presented at the 1993 Annual Conference of the Japan Association of Economics and Econometrics, Hosei University, Tokyo, Japan.
5. Chou, Feng-Ing and Shi-Miin Liu (1995), "Forecasting Models for Taiwan's Seasonal Energy Demand," Proceedings of the 84th Annual Energy Economic Conference, the Association of Energy Economics, Taipei. (In Chinese)
6. Bor, Yunchang J., Shi-Miin Liu, Hung-Kang Jan and Feng-Ing Chou (January 1997), "Long Term Energy Demand Forecasting and Planning for Taiwan," Proceedings of the 20th Annual IAEE Conference.
7. Chou, Feng-Ing, Shi-Miin Liu and Yunchang J. Bor (1997), "Impact of Economic Shocks on Long-Term Energy Demand: A Study of Policy Simulation," Proceedings of the 86th Annual Energy Economic Conference, the Association of Energy Economics, Taipei. (In Chinese)
8. Chen, Hsiao-Chi and Shi-Miin Liu (1998), "Optimal Pollution Control Policies of Energy Industries: A Model of Mechanism-Design Approach," 於第三屆經濟發展學術研討會中發表, 國立中興大學經濟系, 台北.
9. Chou, Feng-Ing and Shi-Miin Liu (1999), "An Empirical Simulation Analysis of Energy Saving Policy with Discussion on Direct and Indirect Industrial Energy Demand," Proceedings of the 88th Annual Energy Economic Conference, the Association of Energy Economics, Taipei. (In Chinese)
10. Liu, Shi-Miin and Chih-Hsien Chou (Feb. 2000), "Parities and Spread Trading in Gold and Silver Markets: A Fractional Cointegration Analysis," Presented at the Eleventh Annual Asia-Pacific Futures Research Symposium, Hong Kong.
11. Chou, Feng-Ing and Shi-Miin Liu (2000), "An Investigation on Factors Affecting Taiwan's CO_2 Emissions," Presented at the 2000 Conference of Environmental and Resource Economics, Management, and System Analysis, Institute of Economics, Academia Sinica, Taipei. (In Chinese)
12. Chou, Feng-Ing and Shi-Miin Liu (2001), "Promotion and Extension of Energy Technologies: An Empirical Analysis on Electricity Utilization Efficiency of Taiwan's Household Sector," Presented at the Fifth Conference

of Economic Development, Department of Economics, National Taipei University, Taipei. (In Chinese)

13. Chen, Hsiao-Chi and Shi-Miin Liu (2001), "Dynamic Incentive Contracts under No-Commitment and Periodic Auditing," 於執法問題研討會中發表, 中央研究院經濟研究所, 台北.
14. Chen, Hsiao-Chi and Shi-Miin Liu (July 2004), "Tradeable-Permit Pollution Control Systems With and Without Commitment to Auditing," Presented in a Poster Session at the Second World Congress of the Game Theory Society, Marseille, France.
15. Chen, Hsiao-Chi and Shi-Miin Liu (November 2006), "Emission-Tax Pollution Control Systems with and Without Commitment to Monitoring," Presented at the Second East Asian Symposium on Environmental and Natural Resources Economics, Seoul, Korea.
16. Chen, Hsiao-Chi and Shi-Miin Liu (December 2006), "Incentive Contracts under Imperfect Auditing," Presented at the First Dutch-Taiwanese Workshop on Cooperative Game Theory and Economics, Enschede, Netherlands.
17. Liu, Shi-Miin and Han-Liang Cheng (December 2007), "Threshold Relationships Among Taiwanese Stock Price Index, Margin, and Short Sale," Presented at the 2007 Annual Meeting of Taiwan Economic Association, National Cheng Chi University, Taipei, Taiwan.
18. Chen, Hsiao-Chi and Shi-Miin Liu (February 2008), "Tradeable Permit Pollution Control Systems with Imperfect Monitoring," Presented at the Third East Asian Symposium on Environmental and Natural Resources Economics, Kunitachi, Japan.
19. Lee, Tsung-Chen, Hsiao-Chi Chen and Shi-Miin Liu (March 2009), "Optimal Intervention in International Emissions Trading Considering Ancillary Benefit of Carbon Abatement," Presented at the Fourth East Asian Symposium on Environmental and Natural Resources Economics, CIER, Taipei, Taiwan.
20. Chen, Hsiao-Chi and Shi-Miin Liu (April 2009), "An Emission Tax Pollution Control System with Imperfect Monitoring," Presented at International Conference on Shipping, Port, Logistics Management, Jungseok Research Institute of International Logistics & Trade, Inha University, Incheon, Korea.
21. Liu, Shi-Miin and Hsiao-Chi Chen (July 2009), "Commitment or No-Commitment to Monitoring in Emission Tax Systems?" Presented at the 20th International Conference on Game Theory, Center for Game Theory in Economics, Stony Brook University, New York, USA.
22. Chen, Hsiao-Chi, Shi-Miin Liu, Tsung-Chen Lee, and Tae-Woo Lee (July 2010), "Ports' Competition under Product Differentiation and Uncertainty: Governments' Simultaneous Moves," Presented at the 12th World Conference on Transport Research, Lisbon, Portugal.
23. Chen, Hsiao-Chi, Tae-Woo Lee, Shi-Miin Liu, and Tsung-Chen Lee (July 2010), "Ports' Competition under Product Differentiation and Uncertainty: Governments' Sequential Moves," Presented at the 12th World Conference on Transport Research, Lisbon, Portugal.
24. Chen, Hsiao-Chi and Shi-Miin Liu (August 2010), "Cost-Efficiency of Four Emission-Reducing Instruments:

- Price, Quantity, Hybrid, and General Indexed Quantity," Presented at the 1st Congress of East Asian Association of Environmental and Resource Economics, Sapporo, Japan.
25. Lee, Tsung-Chen, Hsiao-Chi Chen, and Shi-Miin Liu (August 2010), "Optimal Regulations and Efficiency Losses in International Emission Trading under Different Market Structures," Presented at the 1st Congress of East Asian Association of Environmental and Resource Economics, Sapporo, Japan.
 26. Lee, Tsung-Chen, Hsiao-Chi Chen, and Shi-Miin Liu (August 2010), "Optimal Strategic Regulations in International Emission Trading under Imperfect Competition," Presented at the 1st Congress of East Asian Association of Environmental and Resource Economics, Sapporo, Japan.
 27. Chen, Hsiao-Chi and Shi-Miin Liu (May 2011), "Cost-Efficiency of Four Emission-Reducing Instruments: Emission Tax, Emission Cap, Hybrid, and General Indexed Quantity," Presented at the EEPSEA and EAAERE Joint Conference, Hanoi, Vietnam.
 28. Lee, Tsung-Chen, Hsiao-Chi Chen, and Shi-Miin Liu (May 2011), "Optimal Regulations and Efficiency Losses in Imperfectly Competitive International Emissions," Presented at the EEPSEA and EAAERE Joint Conference, Hanoi, Vietnam.
 29. Chen, Hsiao-Chi, Tae-Woo Lee, Shi-Miin Liu, and Tsung-Chen Lee (September 2012), "Governments' Sequential Facilities Investments and Ports' Pricing under Service Differentiation and Demand Uncertainty," Presented at the International Association of Maritime Economists 2012, Taipei, Taiwan, ROC.
 30. Cheng, Han-Liang and Shi-Miin Liu (December 2012), "Time-varying Pass-through Effects of Commodity Prices and Money Supply on Inflation in China," 於台灣經濟學會 2012 年年會暨第 13 屆全國實證經濟學研討會中發表, 中央大學, 桃園縣, 中華民國台灣.
 31. Chen, Hsiao-Chi, Shi-Miin Liu and Chiung-Yun Chang (February 2013), "Commitment or No-Commitment to Monitoring in Emission Tax Systems?" Presented at the 3rd Congress of East Asian Association of Environmental and Resource Economics, Huangshan, China.
 32. Chen, Hsiao-Chi and Shi-Miin Liu (February 2013), "Environmental Efficiency of Four Emission-Reducing Policies," Presented at the 3rd Congress of East Asian Association of Environmental and Resource Economics, Huangshan, China.
 33. Chen, Hsiao-Chi, Shi-Miin Liu, Lih-Chyi Wen and Kathleen Segerson (February 2013), "Regulating With and Without Private Recyclers," Presented at the 3rd Congress of East Asian Association of Environmental and Resource Economics, Huangshan, China.
 34. Cheng, Han-Liang and Shi-Miin Liu (December 2013), "Asymmetric Effects of Unexpected Monetary Policy on Equity Returns in China," 於台灣經濟學會 2013 年年會中發表, 淡江大學, 新北市, 中華民國台灣.
 35. Chen, Hsiao-Chi and Shi-Miin Liu (February 2014), "Should the European Union Auction Permits in the Third Emission-Trading Phase?" Presented at the 4th Congress of East Asian Association of Environmental and Resource Economics, Busan, South Korea.
 36. Chen, Hsiao-Chi and Shi-Miin Liu (February 2014), "The First-Best Policies Considering Private Recyclers,"

Presented at the 4th Congress of East Asian Association of Environmental and Resource Economics, Busan, South Korea.

37. Liu, Shi-Miin and Hsiao-Chi Chen (June 2014), "Solving Stray-Animal Problems by Economic Policies," Presented at 2014 World Congress of Environmental and Resource Economists, Istanbul, Turkey. (Poster Presentation)
38. Chen, Hsiao-Chi and Shi-Miin Liu (June 2015), "Should the European Union Auction Permits in the Third Emission-Trading Phase?" Presented at the 21th Annual Conference of European Association of Environmental and Resource Economists, Helsinki Finland.