

SUNG HOON CHOI

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EDUCATION

Ph.D. in Economics, Rutgers University	May 2021 (Expected)
Dissertation Title: <i>“Essays on Panel Data Models in Econometrics”</i>	
M.A. in Applied Statistics, Yonsei University	2016
B.A. in Statistics, University of California at Berkeley	2013

RESEARCH INTERESTS

Econometric Theory, Financial Econometrics, Machine Learning, Forecasting
Concentration: high-dimensional data, large panel data and factor models

JOB MARKET PAPER

[“Feasible Weighted Projected Principal Component Analysis for Factor Models with an Application to Bond Risk Premia”](#)

Abstract: This paper considers factor models in which observed characteristics partially explain the latent factors. I propose a feasible weighted projected principal component (FPPC) analysis, which relies on a high-dimensional weight matrix. By using a consistent estimator of the inverse error covariance matrix as the weight matrix, we can take into account both cross-sectional dependence and heteroskedasticity. The rates of convergence for the FPPC estimators are much faster than those from the conventional principal component analysis. Moreover, I suggest an FPPC-based diffusion index forecasting model. The limiting distribution of the parameter estimates and the rate of convergence for forecast errors are obtained. Using simulations and an empirical study with U.S. bond market data, I demonstrate that the proposed model outperforms benchmark models based on other principal component estimators. A substantial gain in predictive accuracy is achieved by (i) incorporating the characteristics and (ii) considering cross-sectional dependence and heteroskedasticity. Specifically, I forecast excess bond returns and find the proposed model performs well among a large group of machine learning techniques such as lasso, neural networks, and random forests.

PUBLICATIONS

[“Standard Errors for Panel Data Models with Unknown Clusters,”](#) with Jushan Bai and Yuan Liao, Accepted, *Journal of Econometrics*.

[“Tree Size Determination for Classification Ensemble,”](#) with Hyunjoong Kim, 2016, *Journal of the Korean Data and Information Science Society*, 27(1), 255-264. (Pre-doctoral)

WORKING PAPERS

[“Feasible Generalized Least Squares for Panel Data with Cross-sectional and Serial Correlations,”](#) with Jushan Bai and Yuan Liao, R & R, *Empirical Economics*.

“Factor Augmented Neural Network for Forecasting Using Many Predictors” (Work in Progress)

RESEARCH EXPERIENCE

Research Assistant for Prof. John Landon-Lane, Rutgers University	2020
Research Assistant for Prof. Hyunjoong Kim, Yonsei University	2014 – 2016
KPMG Korea (<i>Summer Internship</i>)	2010
San Francisco Consulting Group (<i>Summer Internship</i>)	2009

TEACHING EXPERIENCE

Lecturer (for recitation), Rutgers University	2019
• Advanced Economic Statistics – Graduate Course	
Teaching Assistant, Rutgers University	2017 - Present
• Financial Economics (x3), Advanced Cross-sectional and Panel Econometrics, Introduction to Microeconomics, Introduction to Macroeconomics, Environmental Economics	
Teaching Assistant, Yonsei University	2014 - 2016
• Data Mining (x3), Introduction to Statistics (x2) – Graduate Courses	

HONORS AND AWARDS

Alfred S. Eichner Prize in Economics, Rutgers University	2020
• <i>In recognition of path-breaking and innovative dissertation research.</i>	
Hiroki Tsurumi Graduate Dissertation Award, Rutgers University	2020
• <i>In recognition of excellence in PhD dissertation research in econometrics.</i>	
Professional Development Fund Award, Rutgers University	2018
Teaching Assistantship, Rutgers University	2017 – 2021
Teaching and Research Assistantship, Yonsei University	2014 – 2016
Dean's List, University of California at Berkeley	2013

SEMINAR PRESENTATIONS

Econometrics Seminar, Rutgers University, NJ	Aug 2020
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SKILLS AND PERSONAL

Programs: Matlab, Python, R, Stata, Gauss, L ^A T _E X	
Languages: English (fluent), Korean (native)	
Certificates: Society of Actuary – P, FM, VEE ECON, VEE CORPFIN	
Military Service: Sergeant, Republic of Korea Army	2011 – 2013

REFERENCES

Professor Yuan Liao (Chair)
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Professor Norman Swanson
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