Sung Hoon Choi

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EDUCATION

Ph.D. in Economics, Rutgers University	May 2021 (Expected)
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

PUBLICATIONS

"Standard Errors for Panel Data Models with Unknown Clusters," with Jushan Bai and Yuan Liao, Accepted, *Journal of Econometrics*. [PDF]

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

JOB MARKET PAPER

"Feasible Weighted Projected Principal Component Analysis for Factor Models with an Application to Bond Risk Premia" [PDF]

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.

WORKING PAPERS

"Feasible Generalized Least Squares for Panel Data with Cross-sectional and Serial Correlations," with Jushan Bai and Yuan Liao, *R&R at Empirical Economics*. [PDF]

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

TEACHING EXPERIENCE	Lecturer (for recitation), Rutgers University

- Advanced Economic Statistics – Graduate Course (Fall 2019)

Teaching Assistant, Rutgers University
- Introduction to Macroeconomics (Fall 2020)
- Advanced Cross-sectional and Panel Econometrics (Fall 2019)
- Financial Economics (Fall 2017, Spring 2018, Fall 2018)
- Introduction to Microeconomics (Fall 2018)

Teaching Assistant, Yonsei University
- Data Mining – Graduate course (Fall 2014, Fall 2015, Spring 2016)
- Introduction to Statistics – Graduate course (Fall 2014, Spring 2015)

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

HONORS AND AWARDS	Alfred S. Eichner Prize in Economics, Rutgers University	2020

- *In recognition of path-breaking and innovative dissertation research.*

	Hiroki Tsurumi Graduate Dissertation Award, Rutgers University	2020

- *In recognition of excellence in PhD dissertation research in econometrics.*

	Teaching Assistantship, Rutgers University	2017 – Present
	TA/GA Professional Development Fund Award, Rutgers University	2018
	Teaching Assistantship, Yonsei University	2014 – 2016
	Research Assistantship, Yonsei University	2014 – 2016
	Dean's List, University of California at Berkeley	2013

OTHER INFORMATION	*Citizenship:* Republic of Korea
	Languages: English (fluent), Korean (native)
	Software: Matlab, Python, R, Stata, Gauss and LaTeX
	Military Service: Sergeant, Republic of Korea Army (2011 – 2013)
	Certificates: Society of Actuary – P, FM, VEE ECON, VEE CORPFIN

REFERENCES

Professor Yuan Liao (Chair)
Rutgers University
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(848) 932-8621

Professor Jushan Bai
Columbia University
jb3064@columbia.edu
(212) 854-8033

Professor Norman Swanson
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Professor John Landon-Lane
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