

# Hongqi Chen

## Current Address

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<b>Education</b>	<b>Ph.D. in Economics</b>	2017 - 2023 (expected)
	University of Illinois at Urbana-Champaign (UIUC) Committee: Ji Hyung Lee (Chair), Marcelo C. Medeiros, EunYi Chung, Xiaofeng Shao	
	<b>M.S. in Mathematics</b>	2020
	University of Illinois at Urbana-Champaign (UIUC)	
	<b>M.Phil. in Economics</b>	2015 - 2017
	The Chinese University of Hong Kong (CUHK)	
	<b>B.A. in Economics</b>	2011 - 2015
	Shanghai Jiao Tong University (SJTU)	
<b>Research Fields</b>	Econometric theory, Applied econometrics, Quantile Methods, High-dimensional Econometrics	

## Job Market Paper **On the Analysis of Quantile Forward Regression**

*Abstract:* In this paper, we study the theoretical properties of K-step and t-threshold quantile forward regressions in a linear quantile regression model with high-dimensional covariates. The model under our investigation is assumed potentially misspecified and we consider the best sparse approximation using quantile forward regressions. We provide non-asymptotic prediction bounds for both methods, and show asymptotic convergence results and the asymptotic efficacy of K-step quantile forward regression. In our asymptotic framework, we allow the number of covariates and the number of steps to diverge at different rates with the sample size. We demonstrate the superior finite sample performance of quantile forward regressions to commonly-used penalization methods in terms of prediction accuracy and variable selection through extensive Monte Carlo simulations. We illustrate the usage of quantile forward regressions by two empirical applications: growth-at-risk forecasting and testing the convergence hypothesis of international economic growth.

## Working Papers **The Variable Screening Approach for Growth-at-Risk Prediction** (with Ji Hyung Lee)

*Abstract:* This paper investigates a variable screening approach to study growth-at-risk (GaR) forecasting with high-dimensional predictors. Unlike the existing studies focusing on a few predictors, we use a high-dimensional Fred-QD dataset that can retain useful information on GaR forecasting. To do this, we refine and extend the quantile partial correlation (QPC) based variable screening method by Ma, Li, and Tsai (2017) so that the method can employ time series data. A set of Monte Carlo simulations confirms the validity of QPC under weak dependence, and the empirical application on variable selection for GaR forecasting illustrates the benefit of the method. Some labor market factors are shown to be particularly useful in predicting GaR.

## **Inference on Linear Quantile Regression with Dyadic Data**

*Abstract:* In this paper, we study a robust inference procedure for the linear quantile regression estimator with a dyadic data structure. We derive asymptotic distribution for quantile regression estimator when dependence exists between any pair of dyads with common nodes in a network. We provide the consistency results for

the covariance matrix estimator and show asymptotic normality for the corresponding  $t$ -statistic. Numerical simulations are provided to illustrate the excellent performance of our  $t$ -statistic in the inference of quantile regression with dyadic data.

## Working in Progress

### Forecasting Growth-at-Risk with Many Predictors a Quantile Random Forests Approach (with Ji Hyung Lee)

*Abstract:* This paper investigates growth-at-risk (GaR) forecasting with high-dimensional predictors. Unlike other studies focusing on a few predictors, we use a high-dimensional Fred-QD dataset that can retain useful information on GaR forecasting. We compare our GaR forecasts based on quantile random forests with other methods such as traditional quantile regression,  $l_1$ -penalized quantile regression, and GARCH model forecasts. Our results suggest that quantile random forests can provide an improved prediction. Following Adrian et al. (2019), the evolution of skewed- $t$  distributional forecasts of GaR is also provided.

## Research Experience

### Department of Economics, UIUC

- Research assistant to Ji Hyung Lee Jun 2018-May 2023
- Research assistant to Min Jung Kim May 2021-Aug 2021
- In charge of the econometric lab Aug 2021-May 2023

## Teaching Experience

### Teaching Assistant:

Statistics in Economics I, UIUC. (UG)	2020 F
Basic Macroeconomics, UIUC. (UG)	2020 S
Financial Econometrics, UIUC. (UG) and (Master)	2018 F, 2019 S, 2019 F, 2021 S
Financial Economics, CUHK. (UG)	2015 F, 2016 F
Financial Data Analysis, CUHK. (UG)	2016 S

## Awards/Honors

Summer Research Assistantship, UIUC	2018,2019,2020,2021,2022
UIUC Departmental Fellowship, Department of Economics	2017-2018
CUHK Studentship, Department of Economics	2015-2017
SJTU Excellence Scholarship	2013-2014

## Other Services

Consultant of econometric lab in the department of economics, UIUC.	2021-Present
Organizer of UIUC student econometrics reading group	2018-2019

## Other Information

**Programming:** R, Matlab, Python, Stata, C++ (with Rcpp), Unix System Administration

**Language:** Chinese (native), English (fluent)

**Citizenship:** China

## References

Prof. Ji Hyung Lee (Chair) Department of Economics University of Illinois, Urbana-Champaign Email: <a href="mailto:jihyung@illinois.edu">jihyung@illinois.edu</a>	Prof. Marcelo C. Medeiros Department of Economics University of Illinois, Urbana-Champaign Email: <a href="mailto:marcelom@illinois.edu">marcelom@illinois.edu</a>
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