High Dimensional Conditional Factor Model

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This paper studies the estimation and variable selection for conditional factor models with high dimensional instruments. We employ a nuclear-norm regularized regression and adaptive group LASSO regression to consistently estimate the row-sparse coefficients and latent factors, and to select the relevant instrument characteristics. We establish the estimation consistency of factor estimators, selection consistency, and oracle property of the row-sparse coefficient estimators. Additionally, a singular value thresholding procedure is applied to determine the correct number of factors with probability approaching one. Simulations demonstrate that our estimators perform well in finite samples, both in terms of estimation accuracy and selection consistency. In an empirical application, we employ our estimation framework to predict asset returns, highlighting its effectiveness in financial applications.