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Conference Booklet

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A Na a l F a S

National Institute for Fiscal Studies of Tsinghua University (NIFS in short), established in January 2008, is an academic institute conducting academic research and giving policy recommendations on public finance issues.

NIFS is jointly initiated by the Ministry of Finance, the Ministry of Education, and Tsinghua University. With sufficient academic independence, NIFS is affiliated with the university and has close connection with the Ministry of Finance, other government agencies, and research institutes. NIFS is committed to conducting forward-looking and scientific research on major issues on public finance, and exploring new ideas and new methods for analyzing those issues. It merits from international predecessors, as well as draws on domestic experience. NIFS aims to improve the fiscal policies of developing countries, to provide professional and independent insights and supports for China's fiscal and related major policies.

The daily management and scientific research of NIFS is under the leadership of the Academic Advisory Board while the director takes the responsibility. The present director of NIFS is Professor Chong-En Bai --- Mansfield Freeman Chair Professor and the Dean of Tsinghua School of Economics and Management (SEM). NIFS has more than 10 researchers focusing on academic researches and policy analyses on corporate taxation or subsidies, taxation analysis and forecasting, incentives and constraints of local governments' behavior, routine research work in cooperation with the taxation departments, income distribution, and social security.

Theory, *Statistica Sinica*, *IEEE Transactions on Information Theory, IEEE Transactions on Neural Networks*, among others.

Xiaohong has won numerous prizes, awards, and honors. She is the winner of **The**

[1] ***"Functional-Coefficient Panel Data Models with Cross-Sectional Dependence***

P a a

Keynote speech

"Adaptive Minimax Testing in Instrumental Variables Models"

Christoph Breunig[1] and Xiaohong Chen[2]

[1] Humboldt University, [2] Yale University

Abstract

implement in practice. We apply our method to study intergenerational income mobility. Using NLSY data on annual income of parents and children, we find that accounting for measurement error tends to decrease estimated intergenerational mobility across several nonlinear measures of intergenerational income mobility.

Invited Session 2

"Testing Stochastic Dominance with Many Conditioning Variables"

Oliver Linton[1], Myung Hwan Seo[2], and Yoon-Jae Whang[2]

[1] University of Cambridge, [2] Seoul National University

Abstract: We propose a test of the hypothesis of conditional stochastic dominance in the presence of many conditioning variables (whose dimension may grow to infinity as the sample size diverges). Our approach builds on a semiparametric location scale model in the sense that the conditional distribution of the outcome given the covariates is characterized by a nonparametric mean function and a nonparametric skedastic function with an independent innovation whose distribution is unknown. We propose to estimate the nonparametric mean and skedastic regression functions by the L_1-penalized nonparametric series estimation with thresholding. Under the sparsity assumption, where the number of truly relevant series terms are relatively small (but their identities are unknown), we develop the estimation error bounds for the regression functions and series coefficients estimates allowing for the time series dependence. We derive the asymptotic distribution of the test statistic, which is not pivotal asymptotically, and introduce the smooth stationary bootstrap to approximate its sample distribution. We investigate the finite sample performance of the bootstrap critical values by a set of Monte Carlo simulations. Finally, our method is illustrated by an application to stochastic dominance among portfolio returns given all the past information.

"Testing for Structural Change with Good Size and Power"

Bo Wang[1], Zhongjun Qu[1] and Zhijie Xiao[1]

[1] Boston College

Abstract: This paper studies procedures for testing structural changes with good size and power properties. We focus on dynamic models and our analysis covers a wide range important inference problems. A leading case is testing for changing trend in dynamic models. In this case, existing tests suffers from either substantial size distortions or non-monotonic power. Power and size problems also surfaces in other dynamic models. We try to address the size and power issues simultaneously and construct tests with good size and power properties. A modified bootstrap procedure is also proposed. We show, via theory and simulation that the procedure yields tests with adequate size and good power against a broad class of structural changes, including one-time discrete change, smooth change and multiple structural changes. Interestingly, the procedure offers power improvement both locally and globally over tests based on asymptotic critical values. The

normal distribution under the null hypothesis. Finally, the method is applied to test the model in Fama and French (1993) using Fama-French 25 and 100 portfolios, sorted by size and book-to-market ratio, respectively, dated from July 1963 to July 2018.

"A Structural Analysis of Simple Contracts"

Shengjie Hong[1], Yonghong An[2] and Daiqiang Zhang[3]

[1] Tsinghua University, [2] Texas A&M University, [3] University at Albany, State University of New York

Abstract: This paper provides an econometric framework for analyzing simple contracts where an agent chooses between a fixed-price contract and a cost-reimbursement one provided by a principal in each contracting period during possibly multiple periods. First, we propose a consistent procedure for testing the null hypothesis of a corresponding cost function being linear, which is widely assumed for tractability in the literature. Motivated by the rejection of such a null under our empirical data, we then establish nonparametric identification, without restricting the cost function to be linear, for all model primitives given that the agent exerts effort. These primitives include agent's cost and disutility functions, distribution of agent type (innate cost), and parameters that characterize agent's bargaining power and intertemporal preference. We then propose a consistent estimation procedure based on the identification procedure. In our empirical study on transport procurement contracts in France, we find strong evidence that the agent's optimal effort is

"Life Expectancy and Economic Growth: A New Perspective of Interpretation"

Weiguo Wang

Dongbei University of Finance and Economics

Abstract: This paper develops an in-depth interpretation of life expectancy growth effects on the economy from a new perspective of the mortality rates of children, adults and the elderly. We develop an endogenous economic growth model including the above three kinds of mortality, and clarifies the growth effects on which the three kinds of mortality have different action paths, and their alternative effects and income effects in different directions. The empirical results show that the decline in child, adult and elderly mortality rates in most countries have promotion, promotion and inhibition effects on economic growth, respectively; but the results for countries to the south of sub-Saharan African are just the opposite. After replacing the alternative variable for mortality variable, controlling the heterogeneity and the endogeneity, the conclusion is still valid. The analysis of the human capital mechanism through these three mortality rates verifies the rationality of the theoretical model. This paper suggests that when dealing with longevity risks, we need to first identify the extent to which three types of mortality contribute to longevity. Based on the assessment of the effects of the three types of mortality, we comprehensively judge the degree of risk of longevity. Key Words Three Type of Mortalities，Overlapping Generation Model，Human Capital.

"Composite Index Construction with Expert Opinion"

Rong Chen, Yuanyuan Ji, Guolin Jiang, Ruoqing Xie and Pingfang Zhu

Shanghai Academy of Social Science

Abstract: Composite index is widely used in Economics, Finance, Policy Evaluation and so on. The construction of composite index has been studied extensively. The most widely used approach is the Principal Component Analysis approach. In this paper, we proposed a penalized optimization approach to incorporate expert opinions into the PCA approach for determine the weight in composite index. The index weights are obtained by both objective data and subjective expert opinion. Expert would provide importance score to index, along with a confidence score which reflects the expert's confidence in his assessment. There is a balance between the information provided by the data set and expert opinion. We use a data-driven approach to find the optimal balance. The theoretical properties of the procedure are investigated and simulation results are presented. Finally, an economic application on science and technology is carried out to illustrate the usefulness of our method.

schemes to select provincial initial carbon quota allocation schemes that take into account both responsibility and objective, equity and efficiency. The result shows that: (1) From 1995 to 2016, Chinese inter-provincial trade creates a lot of regional carbon transfer, the direction of transfer is mainly from energy production to energy demand areas, flows from the regions with higher or middle economic growth rate to the regions with lower one. Due to the high historical emission, the well-developed areas and some energy-intensive areas should bear more responsibility for emission reduction; (2) In the initial quota allocation scheme, when the historical emission responsibility and the regional transfer responsibility are taken into overall account, the loss and gain from carbon quota of the well-developed areas show heterogeneity, and less-developed areas show homogeneity, which indicate that the responsibility of emission reduction in well-developed areas varies due to differences in energy structure and development mode, while the less-developed areas show consistency: bear less responsibility for emission reduction.(3) Quota schemes based on the principle of fairness will lead to "whipping the cows" and lose efficiency, thus lead to the higher developmental cost; The quota allocation scheme based on the principle of efficiency, though developmental cost is lower, may cause the Matthew effect which will lead to the regional gaps are further enlarged; Only a comprehensive quota allocation mechanism that takes into account both fairness and efficiency can not only alleviate regional development inequality, but also minimize the national cost of emission reduction. The conclusions of this paper have important policy implications for a fair and effective initial carbon quota allocation mechanism, achieving the national total carbon emission control objective, stimulating the vitality of the unified carbon market, and promoting coordinated regional emission reduction.

"Testing for No-cointegration under Time-varying Variance"

Shaoping Wang, Qing Zhan and Yanglin Li

Huazhong University of Science and Technology

Abstract: This study investigates the effects of time-varying variance on residual-based cointegration tests whose null hypothesis is no-cointegration. We found that time-varying variance results in obviously different null distributions. Wild bootstrap-based tests, which are asymptotically valid under time-varying variance, are proposed. We apply our proposed method to test cointegration between the price of Bitcoin and the CSI 300 Index of China, which highlights the usefulness of our test.

"China National Value Chain: Spatial Linkage and Changes in Value-Added"

Wenqing Pan

Tsinghua University

Abstract: Based on the China multiregional Input-Output Tables in 1997 2002 2007 and 2012 and through the three perspectives of intermediate, value-added and input-

involved with only the finite dimensional factor parameters along with the infinite dimensional nonparametric component. For a conjectured restriction on the parameter, we consider testing the null hypothesis that the restriction is satisfied by at least one element in the identified set and propose a test statistic based on a novel martingale difference divergence (MDD) measure for the distance between a conditional expectation object and zero. We derive the limiting distribution of the resultant test statistic under the null and show that it is divergent at rate-N under the global alternative based on the U-process theory. To obtain the critical values for our test, we propose a version of multiplier bootstrap and establish its asymptotic validity. Simulations demonstrate the finite sample properties of our inference procedure. We apply our method to study Engel curves for major nondurable expenditures in China by using a panel dataset from the China Family Panel Studies (CFPS).

"Social Networks with Misclassified or Unobserved Links"

Arthur Lewbel[1], Xi Qu[2] and Xun Tang[3]

[1] Boston College, [2] Shanghai Jiao Tong University, [3] Rice University

Abstract: We study the identification and estimation of social network models when network links are either misclassified or unobserved. We first derive conditions under which some misclassification of links does not interfere with the consistency or asymptotic properties of standard instrumental variable estimators of social effects. Second, we construct a consistent estimator of social effects in a model where network links are not observed at all. Our method does not require repeated observations of individual network members. We apply our estimator to data from Tennessee's Student/Teacher Achievement Ratio (STAR) Project. Without observing the latent network in each classroom, we identify and estimate peer and contextual effects on students' performance in mathematics. We find that peer effects tend to be larger in bigger classes, and that increasing peer effects would significantly improve students' average test scores.