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CP2415-01: Research of better life index and empirical analysis of Beijing

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With the rapid development of the economy and society, GDP is no longer the key factor for measuring the life quality of residents. For the statistical work in the new era, it is desperately needed to build a comprehensive indicator that reflects people's livelihood and well-being more comprehensively in excess of GDP. By taking the high-quality development as the entry point, this paper starts with the development objective and process, selects 49 indicators that reflect the current development situation and development features of Beijing to build an indicator system from the perspective of realizing people's better life and then takes the entire-array-polygon evaluation method to objectively measure the non-empowerment of indicator system, thus obtaining the better life index of Beijing City. The measurement results show that the better life index of Beijing City steadily increased from 2010 to 2017, the people's needs for better life were constantly satisfied, the development foundation was continuously strengthened, and the development potential was also sufficient. However, there are still shortcomings in tourist environment, human settlement, people's health and external attraction, so various efforts are still needed for the development.

CP2416-02: Research on building a modern statistical investigation system

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With the accelerated development of the new economy, the economic forms and social phenomena that need to be reflected and disclosed by statistics are complicated and changeable. Big data and other new information technologies have put forward higher requirements for the completeness, promptness and accuracy of official statistics, and the official statistics have entered a new stage of promoting development through reform and transformation through innovation. Based on the understanding of modern statistical investigation system, this paper sorts out the problems in traditional statistical investigation system. According to the economic and social development of Beijing City, this paper puts forward a main frame for the modern statistical investigation system so as to lay a solid foundation for the constant development of statistic work.

CP2417-03: Research on monitoring and evaluation system for the long-term mechanism of Beijing real estate market

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Under the background of "Housing is for living in, not for speculation" as proposed by the Central Government, to reflect the development of real estate market and the achievement of control objective, this paper, based on related indicator data of various departments and research institutions, establishes a monitoring and evaluation indicator system for the long-term mechanism of real estate market from four aspects such as economy, society, stability and sustainability. The results show that the total index has risen as a whole since the introduction of the property purchase restriction policy in 2010, and the total index in 2017 reached 118.8, the highest value over the years. Next, what needs to be done is to improve the basic system settings, build a precise and efficient housing security system, and optimize the long-term supply system.

CP2418-04: Analysis of the impact of demographic shift on housing demand in Beijing

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In the medium to long term, the development cycle of housing market is closely linked with regional demographic shift, with changes in population size and structure directly affecting development trend of the housing market. As demographic shift is highly predictable, this paper examines the impact of changes in population size and structure on housing demand, preferences and spatial distribution of properties in

Beijing, which can help local government predict its housing market's development trend, make decisions and adjust related policies. This paper concludes that the population scale and structure in Beijing can still sustain its housing demand, but slowing population growth and ongoing demographic shift will have an impact on housing demand and preferences in the near future. In the future, the housing planning in Beijing should look ahead and take into account population policies, and optimize the supply of various types of houses.

CP2055-05: Construction of a survival tree based on concordance probability

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Survival tree is one of the popular analysis method for time-to-event data in the field of medical research. It is well known that setting of the splitting criterion to construct the tree model is especially important in the analysis. Various authors have proposed several criteria. For example, Log-rank test statistics, exponential log-likelihood loss, and residual-based methods are used. In this study, we consider the concordance probability-based splitting criteria for constructing a survival tree. Concordance probability is one of the measure for prediction accuracy of the survival model. We propose the new method to construct the tree model that maximizes prediction accuracy based on the classification and regression tree algorithm. We study the performance of the splitting ability of the criterion based on concordance probabilities, and compare the survival trees constructed by proposed method and conventional methods through simulations.

CP1930-06: Combining Lasso and Liu type estimator in the linear regression model

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The Ordinary Least Square Estimator (OLSE) has been widely used to estimate unknown parameters in the linear regression model. Since OLSE produces high variance on the estimates when multicollinearity exists among the predictor variables, the Ridge Estimator (RE) is introduced as an alternative estimator. However, RE yields heavy bias in the high dimensional linear regression models, and it also produces irrelevant predictors to the estimated model. Hence, the Least Absolute Shrinkage and Selection Operator (LASSO) has been used to ensure the variable selection as well as to handle the multicollinearity problem simultaneously. It is noted that LASSO failed to outperform RE when high multicollinearity exists among the predictor variables. Further, the LASSO estimator is unstable when the number of predictors is higher than the number of observations. Hence, the Elastic net (Enet) estimator is introduced to address this problem by combining LASSO and RE. Since Liu Estimator (LE) is an alternative estimator for RE to address multicollinearity problem, the objective of this study was to propose Liu type Elastic net estimator by combining LASSO and LE. Then, we compared the prediction performance of the Liu type Elastic net (LEnet) estimator with the Elastic net and LASSO estimators in Root Mean Square Error (RMSE) sense using the real-world examples. The results showed that LEnet outperforms the other two estimators in RMSE sense.

CP1932-07: Spatial analysis for forced displacement and war actions. Colombian case

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From 2011 to 2016, Colombia Government and Colombian Revolutionary Armed Forces held dialogues in order to end the armed conflict in Colombia. Spatial relationships can be explained using spatial data analysis methodologies to compare spatial configuration before and after dialogs. This relationship was analyzed using spatial statistical methodologies like Moran's I (Global and Local) and Spatial Regression comparing likelihood functions from SAR, SEM and SDM models. The SDM Model fitted better in both cases. It's necessary to analyze missing data to adjust Spatial Panel Data Models or complement with functional data analysis.