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OBSERVED PROBABILITY MEASUREMENT FOR URBANIZATION DEVELOPMENT LEVEL WITH ERRORS-IN-VARIABLES OBSERVATION

Bing Xu[1] and Junzo Watada[2]
[1]Research Institute of Quantitative Economics
Zhejiang Gongshang University
Hang Zhou 310035, P. R. China
bingxu0@yahoo.com.cn

[2]Graduate School of Information Production & Systems
Waseda University
2-7 Hibikino, Wakamatsu, Kita-Kyushu 808-0135, Japan
junzow@osb.att.ne.jp

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Abstract. *The study provides an observed probability measurement of urbanization level with errors-in-variables observation, which is an innovative nonparametric kernel density approach. The probability changes are observed through the impacts of factors (population and GDP). First, the urbanization process in China can be divided into four stages under the impacts of factors: the observed probability of urbanization level decreases with the impact of each factor at the early stage of urbanization process; while the observed probability increases with the impact of each factor at the middle stage; the observed probabilities at both transition stage and late stage show slight changes under the impact of each factor. Secondly, the observed probability measurement method is also applied to investigate the urbanization development in eastern China, illustrating its general application. Finally, GDP plays a greater role on promoting urbanization development than population.*
Keywords: Urbanization level, Measurement, Errors-in-variables, Weighted kernel density estimation

1. **Introduction.** Urbanization development plays an important role on economic growth. To clearly understand how urbanization evolves and how urbanization works on economic development, the key premise is an accurate measurement of urbanization development level. Howeverthe measurement for urbanization level has shown its own complicated feature and seems hardly to get an accurate answer.

Urbanization itself is tightly related to other economic phenomenon, such as population migration and economic development. Generally, the migration from rural to urban areas might have an influence on the urbanization level of a region; the factors such as the economic development and income gap will also play essential roles on the urbanization process. Lots of literatures indicate this point. Work [5] made an extensive study of rural-urban migration and urbanization in China; work [9] investigated the urbanization in Beijing since 1980s basing on the transition of population migration distribution; work [11]studied the case of Jiangsu province, gained the trend of region population urbanization from the destination change of population migration; work [12] analyzed the migration willingness of China's Midwest rural residents in the urbanization process, which is validated by Chengdu's rural residents from the psychological perspective of population migration.