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Evaluating the economic benefit of land-use monitoring project

Shih-Hsiang Chen, Tsun-Han Chiang, and Shu-Ling Chen

Department of Finance and Cooperative Management, National Taipei University, San Shia District, New Taipei City 23741, Taiwan (chenss17@yahoo.com.tw)

Taiwan is populated densely and relatively small island. Land become a limited natural resources for people living in this island. Thus, sustainable land-use management and policy is important. In recent years, the satellite image is used to identify illegal land-use in Taiwan. The process starts from comparing images of the same area across different periods and detecting the change, to finding the potential illegal cases among all changes. The use of satellite image is treated as a more efficient solution for detecting illegal land-use than the traditional manual investigation. In this project, we try to develop a model to compare the cost and the benefit of the satellite and manual solution in detecting the illegal land-use. The model considers all law relevant to invalid land-use, labor cost for manual investigation, the cost for using satellite image and other factors, as well as the added value for using satellite remote sensing technology. We further look at the number of illegal land-use identified in different cities in Taiwan and discuss the potential explanatory elements (e.g. the type of terrain increases the difficulty for manual investigation). By modelling the cost and the benefit of two detection methods, this study can provide the local government or authorities a reference cost to evaluate and formulate the land-use management policy.