A fuzzy estimation of underground economy in France

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Abstract

One of the remarkable characteristics of the economy in every country is the volume of underground economic activities. It is important to know about the size of the underground economy for macroeconomic policy making, but the problem is that this phenomenon cannot be directly observed. Thus, it is essential to develop methods to estimate the size of the underground economy. In this paper, we propose a fuzzy method to determine the trend and the return points of underground economy and estimate its size based on the percent of GDP. The effective tax rate, household net saving rates, government regulation and unemployment rate were selected as the causes for the estimation and the necessary data were obtained from the OECD database. The fuzzy method applied here consists of three main steps, fuzzification; converting the crisp data to fuzzy data, fuzzy statement or fuzzy decision; fuzzy inference or making decision on fuzzy data by fuzzy rules and defuzzification; converting the fuzzy result to crisp result. Finally, the results were compared with the findings of MIMIC method, which revealed an acceptable agreement.