

## **The Undeclared Value Added Due to the Value Added Tax Evasion of Sole Proprietors**

Ildikó Ritzlné Kazimir

Hungarian Central Statistical Office, Budapest, Hungary [ildiko.ritzln@ksh.hu](mailto:ildiko.ritzln@ksh.hu)

Plenty of methods have been created for estimating the non-observed economy, and they can be classified into two main groups. The econometric models estimating the aggregate level of hidden economy are not able to give sufficiently detailed figures and can output biased results. The bottom up methods are usually applied for the analysing of specific research objectives and therefore their results could not be generalised or extend to the sectors of economy. Therefore it has become necessary to develop a model for estimating the gross value added due to value added tax (VAT) evasion of sole proprietors, which on the one hand results detailed data, and on the other hand the methodology corresponds to the requirements of national accounts compilation. After a two-year methodological investigation by the Hungarian Central Statistical Office, an individual data based model was developed for this purpose that estimated the population of VAT evaders with k Nearest Neighbour Method (kNN) in the first step. In the next step the undeclared VAT was estimated by linear regression and finally the calculation of non-observed value added was completed by using the average VAT rates. The model was introduced in 2011, and the need for further development was raised during the application. The aims of development included the improvement of the predictive capability of the model, and the extension of the calculation to the quarterly national accounts compilation. The presentation will describe the development of this bottom-up model. The improved model estimates the relative size of the undeclared VAT of sole proprietors, and it takes into account the interactions between indicators, as well. The log-linear regression, which is used for this purpose is based on parameters describing the relative size of enterprise, the operation efficiency, the relative market environment and the categories of the economic sociology. The improved model is more suitable for estimations and fits better to the real trends. Further advantage of the improved model is that the frequencies of the used indicators may allow the quarterly estimation of the undeclared VAT as well. Thus the non-observed value added due to the VAT evasion of the sole proprietors can be estimated not only for the annual but also for the quarterly national accounts.

**Key Words:** non-observed economy, estimation, modelling