UNITED NATIONS
ECONOMIC COMMISSION FOR EUROPE
CONFERENCE OF EUROPEAN STATISTICIANS
Group of Experts on Measuring Poverty and Inequality
28-29 November 2023
**Workshop on Harmonization of Poverty Statistics to
Measure SDG 1 and 10**
27 November 2023

Title of contribution	*Exploring Subjective Poverty Dynamics: Beyond the Minimum Income Question*
Author Name(s)	*Tomáš ŽELINSKÝ, Katarína PLAČKOVÁ, Matej POŠEFKO*
Presenter Name	*Tomáš ŽELINSKÝ*
Presenter Organization	*TECHNICAL UNIVERSITY OF KOŠICE, FACULTY OF ECONOMICS, SLOVAKIA*
Topic	*Subjective poverty*

Summary:

Within the scope of various recommendations, the Task Force on Subjective Poverty Measures emphasizes the importance of properly utilizing the Minimum Income (or Spending) Question (MIQ/MSQ) with the intersection approach. This method is considered a fundamental approach for estimating a subjective poverty line (SPL) and identifying populations falling below this threshold. Introduced in the 1970s, the intersection approach has been employed across various contexts and comparisons for decades. To provide official data on subjective poverty using this method, it is imperative to include the MIQ/MSQ in surveys.

Unavailability of MIQ/MSQ question poses challenges when tracking trends in subjective poverty. As a result, researchers need to rely on various approximations or employ different methods. In this presentation, we introduce two distinct approaches for identifying households experiencing subjective poverty, with one approach also enabling the estimation of a SPL.

In the first study, we employ a range of machine learning techniques to train models for predicting subjective poverty status (a binary outcome: poor vs. non-poor) in future periods. These techniques include neural networks, decision trees, random forests, k-nearest neighbors, and logistic regression. All models are trained using the relationship between subjective poverty status, as determined by the MIQ and intersection approach, and a set of variables typically strongly correlated with subjective poverty, collected as part of the EU-SILC core variables.

In the second study, we utilize an alternative framework based on the Deleeck attitude question, phrased as 'Can you make ends meet with the actual income of your household with great difficulty/some difficulty/difficulty/fairly easily/easily/very easily?' within EU-SILC. In this framework, the SPL is defined as the income level that distinguishes subjectively poor households from non-poor households. The cut-off point is determined using measures derived from the confusion matrix. We illustrate this approach using various metrics, including the Youden index, accuracy, the absolute difference of sensitivity and specificity, the product of sensitivity and specificity, the F1 score metric, Cohen's kappa, distance to the point [0,1] on

ROC space, and the absolute difference between positive predictive value and negative predictive value.

Both studies are based on 2005 – 2020 EU-SILC microdata, which is the official data source for poverty analyses in the EU. This relatively long time series allow us to examine the stability and fluctuations in estimated headcount ratios and subjective poverty lines. Furthermore, we compare these estimates to those derived from the MIQ and the intersection method.

Please select your preferred contribution (you may select both options):	
☒ Presentation	
☐ Paper (to be submitted by 20 October)	