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Subjective Income Poverty and Equivalence Scales in Eastern vs. Western European countries

Income poverty can be measured under a relative, absolute, or subjective approach. The relative one prevails in the European environment where the at-risk-of-poverty rate is derived as a share of people whose equivalised household disposable income falls below 60% of median equivalized income. The construction of the poverty line and ranking of countries by poverty rates depends heavily on the equivalence scale used to obtain the “equivalised” household income. The most commonly used equivalence scales have been the OECD or Oxford scale (from the 1980s to mid-1990s), the OECD-modified scale (late 1990s to early 2000s), and more recently the square root of family size (since the 2000s). The economies of scale are greater for the square root scale and least for the Oxford scale. In creating the OECD-modified scale, the authors noted that “...more research efforts should be devoted to the choice of equivalence scales which can be used for cross-country comparisons”. It is hence realised that economies of scale can be strongly country-specific depending on the national structure of living costs, consumption of durable and non-durable goods, and goods with different economies of scale in general. This has been shown in previous research across countries and when based on different sets of consumption goods and services.

The OECD(-modified) equivalence scale was established before the Eastern European countries joined the European Union. We can only speculate which countries were included in the research on its construction in the 1980s and the 1990s, but it is highly probable that the research of that time was mainly driven by the leading Western European countries and other more market-oriented OECD countries. In joining the EU, the former socialist Eastern European (EE) block adopted what we will refer to as the more “Western” equivalence scale. The remarkable differences in the structure of household consumption expenditure that inevitably existed in the EE countries were ignored in studies of income poverty and inequality. Whether the OECD-modified scale or even the square root of family size scale, reflected the consumption structure and consumer preferences from the 1990s in the Eastern European countries is questionable.

This study is motivated by the assumption that economies of scale from living together may differ in Eastern European (EE) and Western European (WE) countries because of the different consumption structures in the two regions. It may be that consumption patterns in more recent times are influenced by consumption patterns instilled in the population from earlier times.

According to the Household Budget Survey (HBS), the highest shares of consumption expenditure are represented by housing and food in both in EE and WE. While the share of housing expenditure – with relatively high economies of scale – tends to be only slightly lower in the EE region than in the WE region, the shares of food – with relatively low economies of scale – are on average substantially higher in EE than in WE. Thus, it follows that economies of scale, considering a full basket of goods and services, would be lower in EE countries than in WE countries in general. Therefore, we assume that the income poverty indicator – the at-risk-of-poverty rate – commonly applied for European comparisons may not provide meaningful results. The choice of the equivalence scale substantially influences cross-country comparisons, the ranking of countries in both poverty and inequality ladders, and the demographic composition of the poor.

In the literature, equivalence scales have usually been estimated based on consumption/expenditure data or subjective data such as income evaluation question, minimum income question, or income satisfaction. In this study, we use responses to the Minimum Income Question (MIQ) available in the internationally harmonised and comparable survey Statistics on Income and Living Conditions (EU-SILC) to produce both poverty thresholds and equivalence scales. The subjective income poverty lines and subsequently poverty statistics are estimated without the use of equivalence scales. We apply a model-based method to define the subjective poverty line (SPL), intersecting responses to the MIQ with reported actual income, controlling for other household and economic variables. Using these estimated thresholds equivalence scale can be derived. Subjective-based scales are compared with the officially used OECD-modified and square root of family size scales.

For this study, we first estimate the subjective income poverty lines for selected countries in Eastern and Western Europe and compare the subsequent subjective and objective income poverty rates. Second, we use the MIQ thresholds to derive the implicit equivalence scales and compare this to the OECD scale, the square root of family size scale, and to consumption/expenditure based scales presented in the literature. The estimated equivalence scales based on the MIQ are expected to differ across countries and should better reflect the country-specific conditions and consumer preferences. Last, we perform cross-country sensitivity analysis aimed at assessing to what extent income poverty rates are robust to the equivalence scales used. We hypothesise that those EE countries, which constantly reach the lowest at-risk-of-poverty rates such as the Czech Republic and Slovakia, will be ranked considerably higher in the European ladder and that the overall ranking of European countries will result in a more apparent division of the two regions.

Numerous former Soviet countries have undergone substantial changes in their national statistical systems, to achieve better comparability of reported data. The approach and results

obtained within this particular study can serve as an inspiration for these countries in the processes of developing poverty measures that reflect their country-specific conditions to a greater extent.