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Multidimensional Poverty in Russian Regions

The poverty rate is among the main development indicators. Recent research has demonstrated the narrowness of the one-dimensional approach to the measurement of poverty through income or consumption. The development of capabilities theory has led to the emergence of multidimensional poverty concept. The main advantage of the multidimensional poverty is the accounting for the deprivation in access to basic needs. Also, multidimensional poverty is closer to chronic poverty than the income poverty that primarily consists of transitory poverty.

Russia is of special interest due to the substantial diversity of its regions. The majority of studies show the large gap in well-being between rich and poor Russian regions. In Russia, the official data on poverty are heavily criticized with regard to the choosing the poverty line and ignoring the economy on scale.

The purpose of this paper is to calculate the multidimensional poverty index (MPI) for Russian regions and find the determinants of multidimensional poverty. To the best of our knowledge, it is a first attempt to calculate MPI for all regions of the Russian Federation.

Multidimensional poverty index was developed by Alkire and Santos (2010) as an alternative to an outdated traditional approach based on the comparison of income or consumption with poverty line. The first cross-country comparisons by MPI were introduced in the UNDP Human Development Report 2010. In subsequent years, different researchers adapt MPI for regional comparisons in the European Union, Malaysia, China, India, South Africa, Mexico, Argentina, Brazil and other countries. For example, Alkire, Apablaza, and Jung (2014) suggest the modification of the MPI for EU regions. They add the environmental dimension to reflect such important deprivations for citizens in the developed counties as pollution, crime, and noise. Le, Nguyen, and Phung (2015) adjust the MPI calculation for regions in Vietnam by adding the deprivations in social insurance, social assistance, access to information, social participation. Remarkably the ranking of regions in Vietnam by multidimensional poverty in their study differs from the ranking by income poverty.

Our research is an attempt to receive a reliable assessment of multidimensional poverty level in the Russian Federation in general and in its regions. The calculations are based on the microdata from the Comprehensive Monitoring of Living Conditions of the Population carried out by the Federal State Statistics Service of the Russian Federation (Rosstat) in 2014 that covered 136,232 individuals from all regions of Russia.

We modify a method of MPI calculation taking into account the most prevalent deprivations in Russia. The index of multidimensional poverty reflects a number of deprivations in education, health and living conditions. Each person in a household is defined as poor or not poor

depending on the quantity of deprivations, which she faces in the household. Then these data are aggregated into households and are used to conduct the measure of multidimensional poverty.

Our modification also uses three dimensions of MPI as the original index. These dimensions are education, health, and living condition. However, the list of deprivations in each dimension has changed. In our modification of MPI, the deprivation in education includes the following indicators: primary education or less, the number of years of education less than 5 years, no school attendance for children 7-16 years old. The deprivation in health includes the following indicators: self-assessment of health as poor, chronic diseases, disability, and lack of access to medical care. The deprivation in living conditions include problems with hot and cold water supply, bad accommodation conditions, living in communal apartments, problems with the electric power, poor quality of water from an available source, inappropriate heating type, poor self-evaluation of current financial position, lack of resources to buy medical drugs, income below the poverty line.

Then we calculate an index reflecting deprivations that are experienced by a household for each dimension. The maximum value is 10 in the extreme case when all deprivations exist in the household. Each dimension has equal weight (thus the maximum point on each measurement is equal to 10/3). Dimension "Education" has 3 indicators, therefore, the weight of each indicator is equal to (10/3)/3 or 1,111. Dimension "Health" includes 4 indicators, so the weight of each deprivation is equal to (10/3)/4=0,833. Dimension "Living conditions" includes 10 indicators and in this case, the weight of each measure is equal to (10/3)/10=0,333.

To identify the multidimensionally poor households, all indicators are multiplied by its weight and summarized that in turn results in the general indicator of household deprivation, c. The household is considered to be multidimensionally poor if $c > 3$.

The results show that the overall poverty rate and interregional inequality in Russia are much higher compared to Rosstat data. For some regions (for example, the Altai Republic, Belgorod Oblast) results of our calculations considerably differ from the official statistics data. The multidimensional poverty rate in Russia according to our estimates is more than 25% that is more than two times higher the income poverty rate. The poorest region in Russia by the multidimensional approach is the Altai Republic where the deprivation is experienced by more than the half of the households. The smallest poverty rates are observed in the federal cities of Moscow, Saint-Petersburg, and Sevastopol, the Yamal-Nenets Autonomous Okrug, and Chukotka Autonomous Okrug where the level of the deprivation doesn't exceed 10%.

Using econometric methods, we reveal the main demographic and social determinants of differences in MPI. The significant determinants include household size, the number of children in the household, type of settlement, an age of the household members. The multidimensional poverty rate for households with three or more children is substantially higher compared to other households. The probability to live in multidimensional poverty is substantially higher for

the dwellers of the medium-sized rural settlements and substantially lower for the big city inhabitants.

The results of our research show that in poverty studies it is necessary to consider a number of the combined deprivations as such deprivations give the more comprehensive picture of poverty compared to the income poverty.