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Regional Cost-of-Living Adjustment: A Non-parametric Matching Approach

Anastasiya Lisina

Philippe Van Kerm

There are large differences in standards of living across countries and regions. The magnitude of the difference can be very large. To illustrate, the difference between the minimum and the maximum costs of a basket of goods and services is three times in both Russia and the US. There is no doubt that ignoring these disparities might to bias in inequality and poverty estimates.

Efforts to measure economic well-being across countries and regions require, among other things, some adjustment of income to take into account of need. In this paper, we perform regional comparisons of living standards using the concept of equivalent income. More specifically, we exploit variations in incomes, socio-demographic characteristics (family composition, age, employment etc.) and in financial hardship across regions in Russia. Using these regional variations, we, firstly, define monetary compensations which should be given to individuals from region A so that there would be no price differences between regions A and B, for example. Secondly, we exploit equivalent incomes across different regions together with dynamics of the official region CPIs and document how well the official price indexes across Russian regions capture changes in perceived financial hardship among people in different regions.

This paper offers an innovative approach to study regional monetary differences using information on financial hardship. The main question of the paper is whether regional price differences “mirror” perceived financial hardship of individuals.

In order to answer the question, we need a data on incomes, socio-demographic characteristics and self-assessed economic well-being of individuals from different regions. Fortunately, the Russian Longitudinal Monitoring Survey offers this information for 38 Russian regions over 1994-2015 years. In addition to this, we exploit data on official regional cost-of-living indices (COLI) published by the Russian Statistical Office. In order to measure financial hardship of individuals we use the following question: how satisfied are you with economic conditions? Graph 1 below illustrates regional differences in CPI (right-hand axis) and economic satisfaction (left-hand axis) for individuals in two regions over 1994-2015 period. The evolution of CPI is expressed relatively to the average Russian CPI of the same year. The graph shows that there are

persistent regional differences in both price levels and economic satisfaction. We document these differences across all the regions.

The purpose of the paper is construct a set of equivalent incomes for all possible sets of regions in Russia. Based the example depicted below, we estimate how much more of income identical individuals from Moscow and Rostov need to possess in order to experience the same price levels. We consider individuals being identical if they experience the same economic satisfaction, that is a strong condition, and live in similar household type (such as share of children, women, pensioners, age structure and housing type), that is a weak condition. Using this information, we can rank all the regions. Once the set of equivalent incomes is defined, we estimate income ratios across all Russian regions and compare it with dynamics of CPIs. How perceived financial hardship of different regions is mirrored by the official price statistics is the purpose of the study.