

Spatial Aspects of Community Well-Being. Analyzing Contextual and Individual Sources of Variation using Multilevel Modeling

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Since households in local communities present an example of nested data structures, the question of interest concerns different sources of variation in their well-being - whether individual-induced or community-induced variations prevail? This calls for identifying covariates at both levels in models aimed at evaluating their effects for each of the two measures used here. One is local risk; other is local capital. They serve as indirect indicators of community well-being proxied by multi-dimensional index of local deprivation (MILD), and by a measure of the 'local assets', respectively. The former is composed of eleven domains (including ecology, labour market, education, etc.) using public data collected at the finest level of details (NUTS5–communes/*gmina*). The latter was assessed using questionnaire surveys of local authorities, nonprofit organizations, and households, well-being of which was measured too.

This paper's purpose is two-fold. First is to explore cross-level effects of household-level and community-specific factors of well-being. Second is to consider whether or not we can measure it directly at the community level, instead of using individual-level scores as its main input. At the measurement and descriptive level, it starts with decomposition of inequality of MILD by its component domains which showed their unequal contribution to overall deprivation of a community. It was followed by spatial decomposition of inequality of MILD (employing Theil's index – *communes* were grouped by NUTS4 units / *powiats*) - in order to define the relative importance of contextual heterogeneity. Alternatively, communes were grouped into spatial clusters using geo-referenced information for *gminas* in order to clarify the nature of differences in sources of variations among them.

At the analytical level, measures of individual household well-being were combined to assess community well-being (about 400 households were selected from a small number of communes). It was compared with community well-being derived from proxy measures of community vulnerability (risk factors) and resilience (local 'assets'). This helped to identify covariates for multilevel models, starting with assessing parameters of level-1 model (in which a well-being score for *i* household in commune *j* was estimated), treating the mean well-being score for *j*th commune as a random variable in the level-2 between commune model; a fixed effect was employed given non-sampled selection of households. As a result, cross-level interaction between household and community characteristics was specified and estimated, showing robust 'community effect' for household well-being (and *vice-versa*). However, the issue of measuring community well-being independently on household well-being requires further conceptualization.

Key words: community deprivation, local risk, local capital, spatial inequality.