



Individual and Community Well-Being in Transborder Areas: Spatial Patterns and Regional Accounts - an exercise from Poland and Ukraine.

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Abstract

Transborder areas are studied from a variety of angles, such as local development or migration, and recently also well-being, to mention a few. However, question about their exceptionality as a spatial context for individual well being and community well-being (*gminas*), and how they relate to each other, remains still among relatively less recognized. The goal of this paper is three-fold. [First] It starts with identification of spatial patterns of the two types of synthetic indicators, pertaining to community and individual (subjective) dimensions of well-being and quality of live, respectively. Spatial autocorrelation coefficients are used to measure the strength of spatial effect independently, while looking for the patterns of co-occurrence of the clusters identified for both of them. Having collected data from samples of about 1200 individuals in selected *communes/gminas* (about 400 households from each of the three NUTS-2 level areas under study - two in 'exterior' areas of Polish voievodship adjacent to Ukraine, and one in a central voievodship as a reference 'ininterior' area), a test on null hypothesis (lack of spatial effect) is further extended to consider spatial relations between individual and community well-being. [Second] It is followed by a search for an underlying spatial processes that might affect cross-level (individual-community) interaction due to some neighboring effect. To address this, multilevel modeling with spatial effects is being discussed. [Third] The much discussed issue of the relationship between subjective and objective measures of well-being is also addressed here. To this aim, preliminary estimates of the regional national accounts - for sub-regional units (NUTS-3, the case of Poland only) - are calculated. And the multilevel modeling with spatial effects is subsequently adjusted to capture the problem of subjective-objective influence in the local context. Some suggestions on further empirical (comparative) study with the use of the presented methodological strategy in an international perspective conclude the paper (presentation).

Keywords: subjective and community well-being; spatial clusters; multilevel modeling; regional accounts.

1. Introduction

Transboundary areas have become recently an object of increasing interest of public statistics and policy-making. Especially in the context of regional (local) development studies encompassing also spatial aspects of well-being - as emphasized in the so-called new geographical economics (Capello and Nijkamp, 2009) concerned also with public resource allocation and evaluation of their outcomes. Given specific character of the cross-border (economic) activities and the relevant underlying processes, multi-source /multi-method data system needs to be developed in order to account for consequences they have for the local population. Both in terms of the appropriate measures of individual and community well-being, and for the regional economy as a whole, which can be

captured by the regionally referred national accounts. Such tasks pose several challenges to the official statistics. However, many of them can be dealt with due to the recently developed spatial analysis techniques that make use of the growing supply of geostatistical data. Some of key methodological issues that arise in this context are addressed here along with empirical illustrations of suggested approaches.

2. Conceptualization, operationalization and data

2.1. Subjective and community well-being.

Community is often mentioned either among the most important dimensions or aspect of individual (subjective) well-being (OECD, 2013) or as direct component of it. It is of special interest here since it can play dual role in the analysis. On the one hand, it is an object of the analysis itself, being conceived as a product of the transborder activities which requires characterization in terms of spatial cluster to check hypothesis about the effect of near-border locality on it. On general, a tendency can be expected for community well-being to spatial clustering along the border, and to diminishing intensity of this phenomenon with growing distance to the border. On the other hand, community well-being can be conceptualized as a factor of individual well-being that operates in either passive or active way. First, community well-being is conceived as a context variable affecting certain aspects (domains) of individual well-being. In fact, community well-being is operationalized here in terms of a multidimensional index of local deprivation, and is meant as a gap to be filled in order for a locality to reach a desired level of well-being. To this, two-level spatial clusters will be used to test out first whether some patterns emerge (and how clear they are) with respect to spatial co-occurrence of the individual and community well-being measures. In the second approach, community well-being is not interpreted as an attribute of community anymore, but is meant as one of the basic components of individual well-being (measured by questions about such aspects as 'sense of community' and 'feeling of belongingness'). That is, community well-being is viewed as one of 'the five essential elements' in sense of the conceptualization adopted for instance in the Gallup Polls - next to career well-being, social well-being, financial well-being, and physical well-being (Rath and Harter, 2010).

Consequently, we may ask about subjective and objective community well-being in spatially aligned areas, and to detect spatial patterns of their congruence /incongruence in the local context using spatial clusters. However, any inference about their relationship as well as about relations between any other domain of subjective well-being and community well-being - the latter being meant here as an inversion of local deprivation - would require multidimensional modeling (e.g. Okrasa 2013) in one of alternative versions. Either assuming spatial effect or interaction across individual and locality levels (e.g., Corrado and Figleton, 2011), or using two-step regression (e.g., Sanca, 2010), or employing multilevel structural equation models (Goldstein et al., 2007; Rabe-Hesketh et al., 2014), or modeling estimations and predictions for binary outcomes between spatial and the standard multilevel models in the presence of both within- and between-neighborhood correlations, through simulations (Xu, 2014). Some of such approaches are briefly reviewed from the point of view of their adequacy to the available data.

2.2. Measures of individual wellbeing:

Subjective wellbeing was measured with the following three sub-scales - based on the scale proposed originally for *Survey Modules for the Oxford Quality of Life Index and Dashboard/OXQOL*, see

Anand et al., 2010) - each covering different aspects: (i) material aspects of life; (ii) social and intellectual aspects; (iii) satisfaction with key domains well-being.

Community well-being was first measured as an element of subjective well-being, using *Sense of Community/SCI* scale (Chavis et al., 2008). Community well-being as an objective measure is characterized by *Multidimensional Index of Local Deprivation (MILD)*. A *confirmatory Factor Analysis* was employed to identify component items for the following dimensions: ecology, finance, economy, infrastructure, municipal utility, culture, housing, social welfare, labour market, education, health. The total derivation was defined as a sum (unweighted) of the component values.

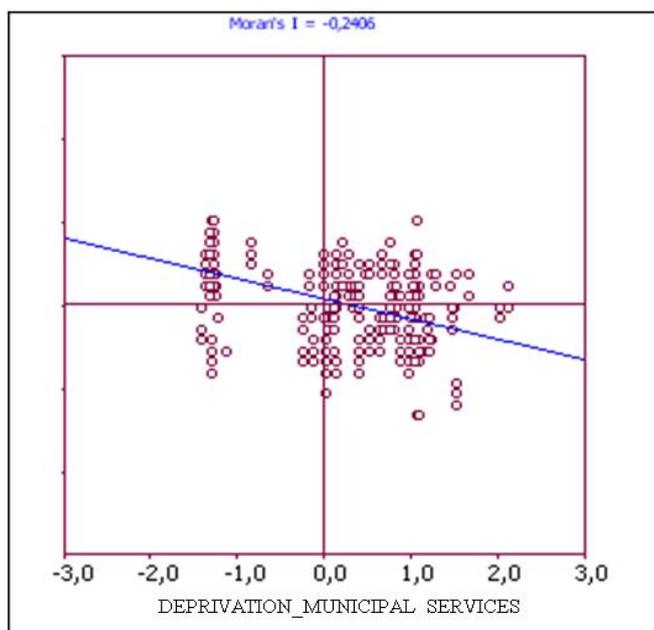
3. Transborder and spatial aspects of well-being

It was expected that potential between-neighborhood correlations tend to be higher amongst the communes (*gminas*) in areas nearby Polish-Ukrainian border, on both sides of it (say, within 30 km distance from the border), compared to others, because of the underlying spatial processes. And this poses an analytical problem with checking the spatial effect of commune itself. One way to account for such processes could be to group them within a higher level of statistical division, such as sub-regions (NUTS3) and use certain attribute(s) as a common denominator for seemingly homogenous type of factors operating cross communes. Such factors can be characterized in objective terms - such as regional estimates of national account

4. Some (selected) results

Examples of results:

Fig. 1. Moran *Scatter plot* for natural environment (an item of SW-B - opinion of residents) by the level of deprivation in the domain of *municipal services* (Poland



: Negative autocorrelation (M-I = - 0,24) means that residents in areas with inadequate municipale services tend to be less happy from the quality of natural resources.

Fig. 2. Moran Scatter plot for subjective well-being by size of *communes* (Ukraine)

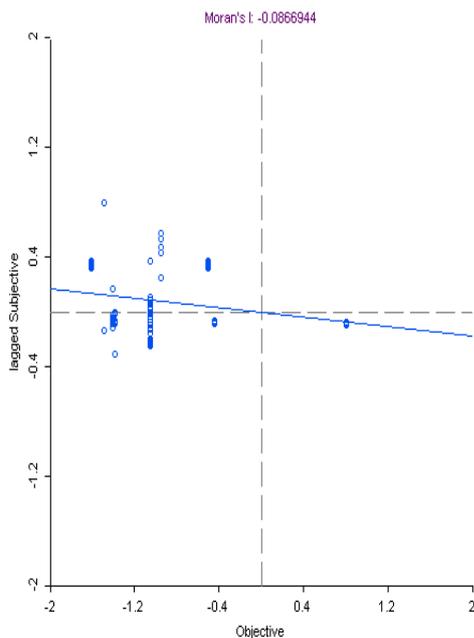
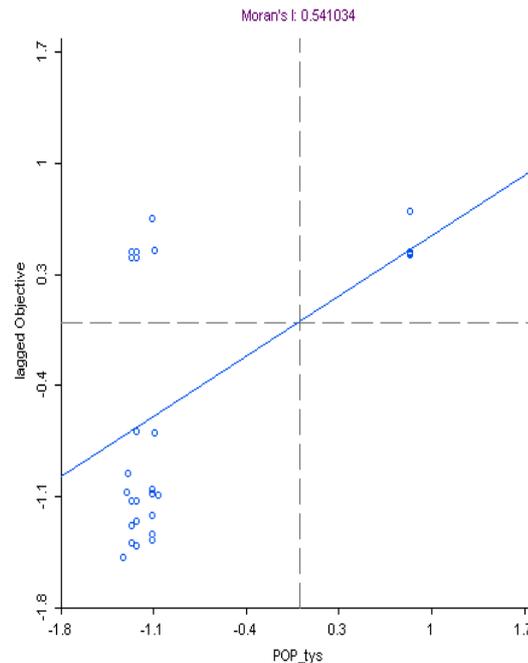


Fig. 3. Moran Scatter plot for individual objective well-being by size of *communes* (Ukraine)



Very small spatial relation between subjective well-being by the size of commune but a tendency for the well-being to be higher in smaller (rural) areas than in bigger (urban) areas. Contrary to objective aspects of individual well-being (Fig. 3) which strongly concentrates in L/L field (small commune and low well-being).

5. Conclusions

Given data limitation (they come from purposeful-type quasi-random samples drawn independently from different regions) the presented results of analysis have limited scope of generalization. However, some differences in between-country (Polish - Ukrainian) and between central and bordering areas are noteworthy. For instance, as regards the direction of mutual modification of individual financial status and local deprivation index (contextual variable) in their impact on people's wellbeing. Some explanation relates to the intensity of participation in trans-border activities: More active persons seem to be living in less developed but closer to border places. Spatial clustering seems a natural approach to this question. More effective is analysis that makes use of scales of the component subjective wellbeing – material, social and intellectual wellbeing, belongingness and identification. Surprisingly enough, and in spite of being strongly inter-connected between themselves, these measures show generally weak association with local deprivation index. This is another reason to employ appropriate, multilevel model of interaction.



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