

SCORUS 2018

The Measurement Aspects of Community Well-Being Research:

A Urban-Rural *Spatial Justice* Perspective

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[Remarks on] Conceptualization and operationalization of community well-being (CW-B) in the evaluation policy research context

Two complementary outlooks:

(i) ***methodological***, starting with an overview of the main approaches (paradigms) to measuring CWB in public statistics, and
(ii) ***analytical***, checking distributional potentials of the CWB indicators for geographic targeting of public resources, including their effects for :

- reducing local deprivation (gminas) and contributing to 'social progress' in the local context (going *beyond GDP* as measures of social progress: Stiglitz et al., 2010, OECD, 2013/2015) and using dual type measures –objective and subjective – for CWB (e.g., Kim and Ludwigs, 2017, Okrasa 2017).
- inequalities among 'localities' (NUTS5 units / gminas) -- implications for spatial cohesion and 'community cohesion' (Okrasa 2017, Okrasa and Rozkrut 2018)-following Forrest and Kearns (2001) and focusing on selected (out of five) topic areas: *reduction in wealth disparities*, and *place attachment and identity*.

Type of tasks in measuring community wellbeing for policy research and evaluation

Interpretation of Community Wellbeing (CWB)	Focus on monitoring and evaluation	
	Changes in community relevant characteristics alone	Changes in both community and individual (residents') characteristics
- objective community wellbeing (CWB)	A. One-level cross-section or dynamic	B. Multilevel w/cross-level effects
- subjective community wellbeing (SCWB)	C. One-level w/CWB as a 'context' (subjective 'cohesion')	D. Multilevel with mutual influence and interaction

Choice of an approach – justification for choosing („D”) *multilevel approach w/moderating factor and interaction*

[Pragmatic reason] Special emphasis being put on the relationships between community and individual wellbeing

-- demand for a device to better allocate the scarce resources to communities (communes/gminas) - geographic targetting acc. to needs - accounting for individual (subjective) wellbeing.

→ research design and the measurement issues:

- ‘nested’ (hierarchical) data structure and
- parallel compatible measures of community and individual wellbeing (range of measures: OECD 2013/15-*Better Life/How’s Life?*; Steuer & Marks/LSE-Project, 2008; Philips and Wong (eds) 2017).

→ multilevel spatial modelling

- interaction-focused models (eg., Subramania, 2010;
- influence (‘causal’) and moderating factor models (Morgan and Winship 2007; Hong 2015, Okrasa 2017).

Re: Conceptualization of 'community wellbeing'

There are several reasons for focusing on community wellbeing in both research and policy considerations, especially in the local development context. Many of them have been recognized and discussed thoroughly in the literature, either as a part of the process or outcome of such development, challenging the tradition of using GDP and other economic indicators as measures of social progress (Philliand Wong, 2017, Kim and Ludwigs, 2017, Lee et al., 2015).

However, efforts to go 'beyond GDP' in the evaluation of socio-economic progress were undertaken several decades ago – for instance, social indicators movement see Land's and Michalos' "Fifty Years After the Social Indicators Movement...", (2017).

Methods of community wellbeing assessment, including subjective aspects of wellbeing, are becoming standard tools for policy purposes in several countries (eg., Australia, Canada, the USA and the UK). They all have one feature in common: they are based on self-reported feeling about selected aspects of wellbeing in connection with community, and community itself is among the components of the wellbeing measures.

Community Wellbeing – *contin.*

operationalization and measurement approaches

The nature of the 'community' as a type of set	Interpretation of wellbeing Characteritics / measure:	
	Attributive /non-decomposable	Descriptive
Collective /focus on community as an entity / unit	aggregative/ 'holistic': community deprivation (Okrasa 2014, Strubelt, 2005); commnity survey data; also Hunter's typology; <i>social indicators</i>	typological /taxonomic - <i>top-down</i> or normative conceptualization: OECD 2013/2015 (eg., 'community' component); national versions (<i>Atlas Project</i> (Kim and Ludvigs, 2017)).
Distributive /community as a composition of residents /members of community	compositional: sub-population group-derived composed characterisitcs; eg. 'Sense of Community' (eg., CSI, Chavis et al., 2008); household survey - based community data (<i>Social Diagnosis</i>)	individual summary item /bottom-up or data-driven: TUS /DRM data-based (eg., Krueger et al., 2009, Okrasa, 2017; Okrasa and Rozkrut, 2018)

Measures employed in the presented below analysis:

- CWB: aggregative/holistic – objective : MILD
- SCWB: individual summaries – (quasi) subjective : TUS data-base
- SCWB: compositional – subjective: *Social Diagnosis*: 3 scales concerning satisfaction from selected aspects of life in the community:
 1. Locality as 'a place', housing, security (LHS);
 2. Social relations in family and in neighborhood, and life achievements (FSE)
 3. Life perspective while living where s/he lives ('in here', LPH).

DATA and MEASURES:

Local Deprivation and Subjective Well-Being (SW-B)

❑ Multisource data base:

(a) commune/gmina level data: Regional / Local Data Base (CSO – public file 2004, 2008, 2010 and 2012, 2014, and 2016); NUTS5/LAU2; (N = 2 478);

→ community well-being CW-B in terms of reduction of local deprivation

■ Measuring area deprivation at the commune level

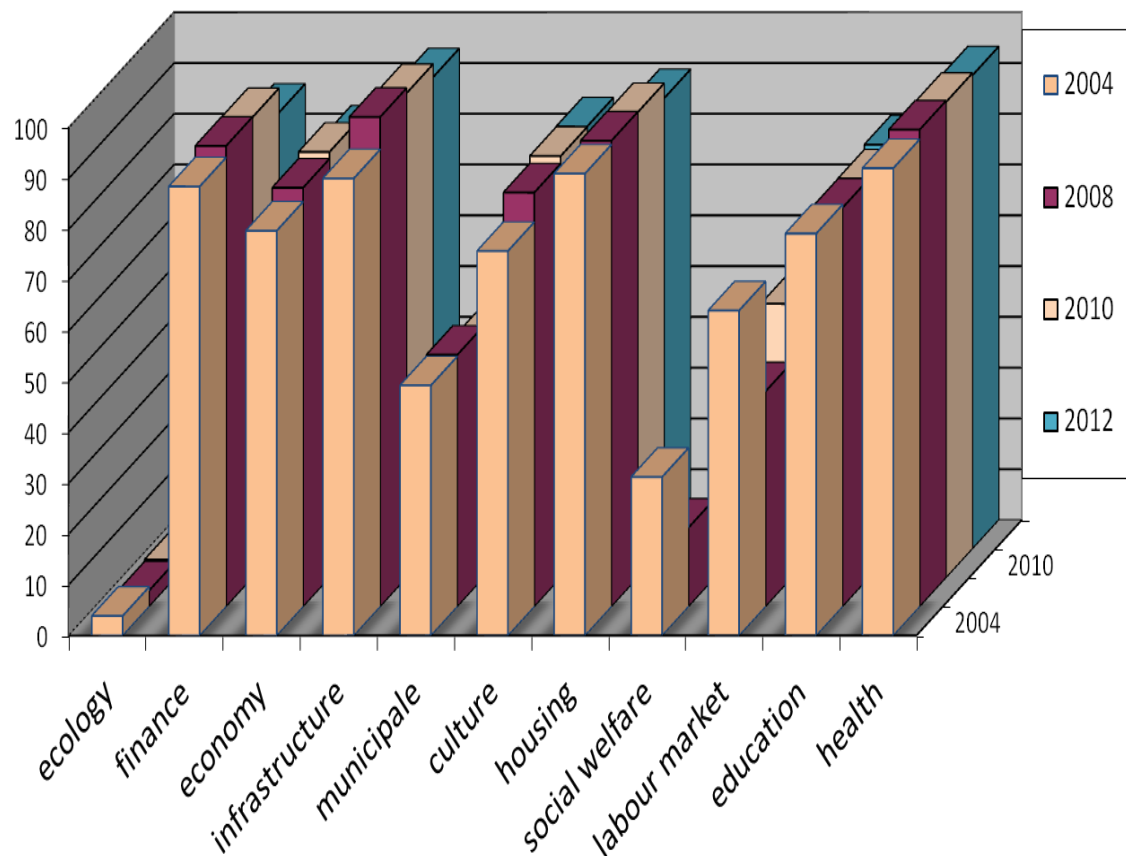
▶ *Multidimensional Index of Local Deprivation (MILD)*

‘Confirmatory’ Factor Analysis / PCA (single-factor selection):

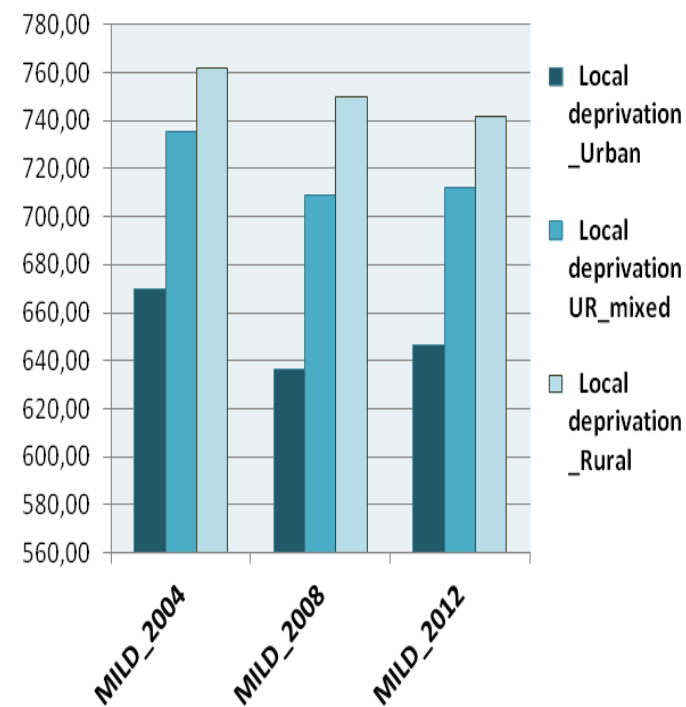
Eleven (pre-selected) domains of deprivation - each characterized by a number of original items: *ecology – finance – economy – infrastructure – municipal utilities – culture – housing – social assistance – labour market – education – health* [65 items]

→ **Appendix 1**

Domains of the composite *Multidimensional Index of Local Deprivation* – in 2004-08-10-12



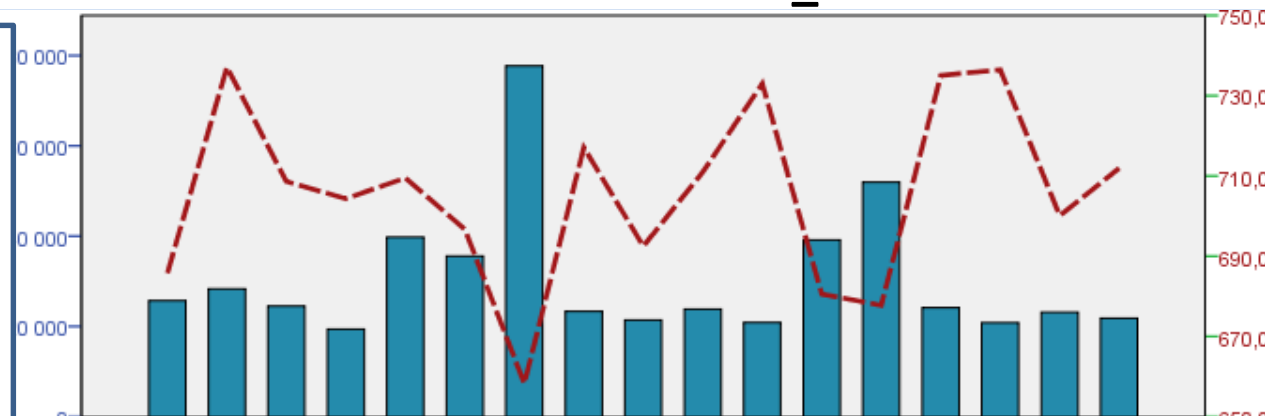
Local deprivation/MILD, 2004-08-12, by type of commune/gmina



Local deprivation/MILD and size of gmina's population by voivodship, in urban and rural areas _2016

Urban

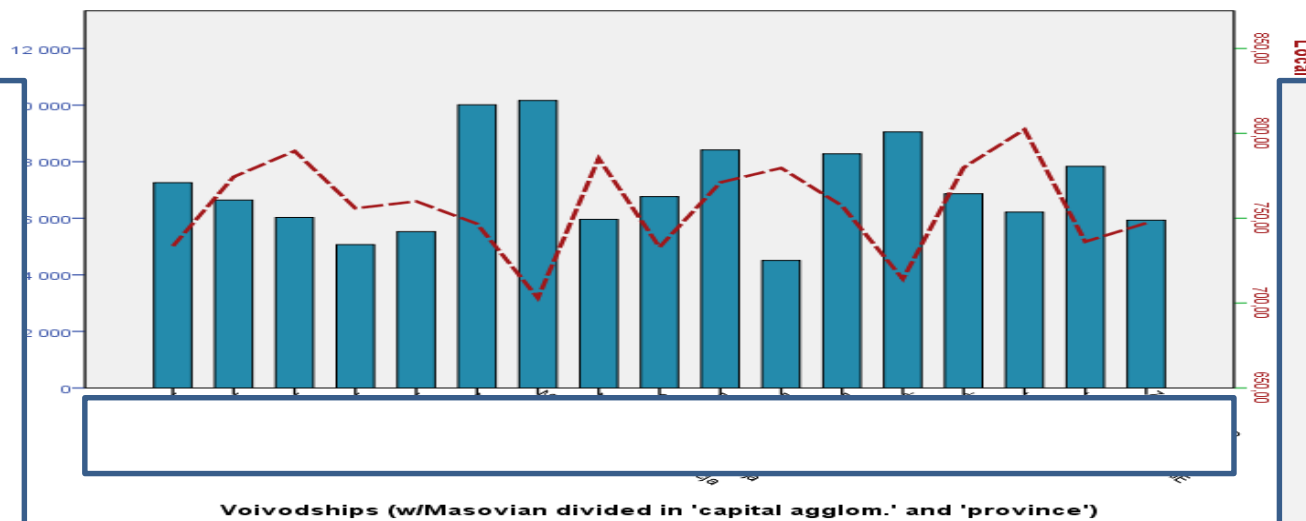
Size of gmina's population_2016



Local deprivation of gminas_2016

Rural

Size of gmina's population_2016

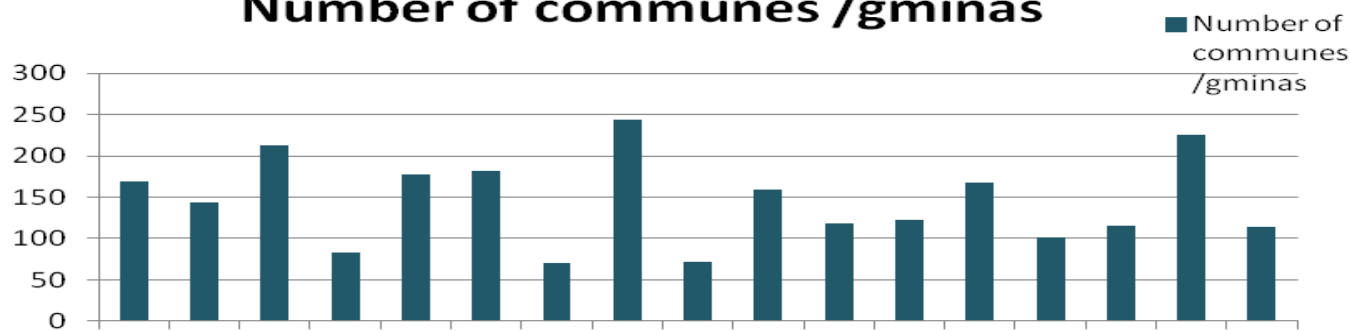


Local deprivation of gminas_2016

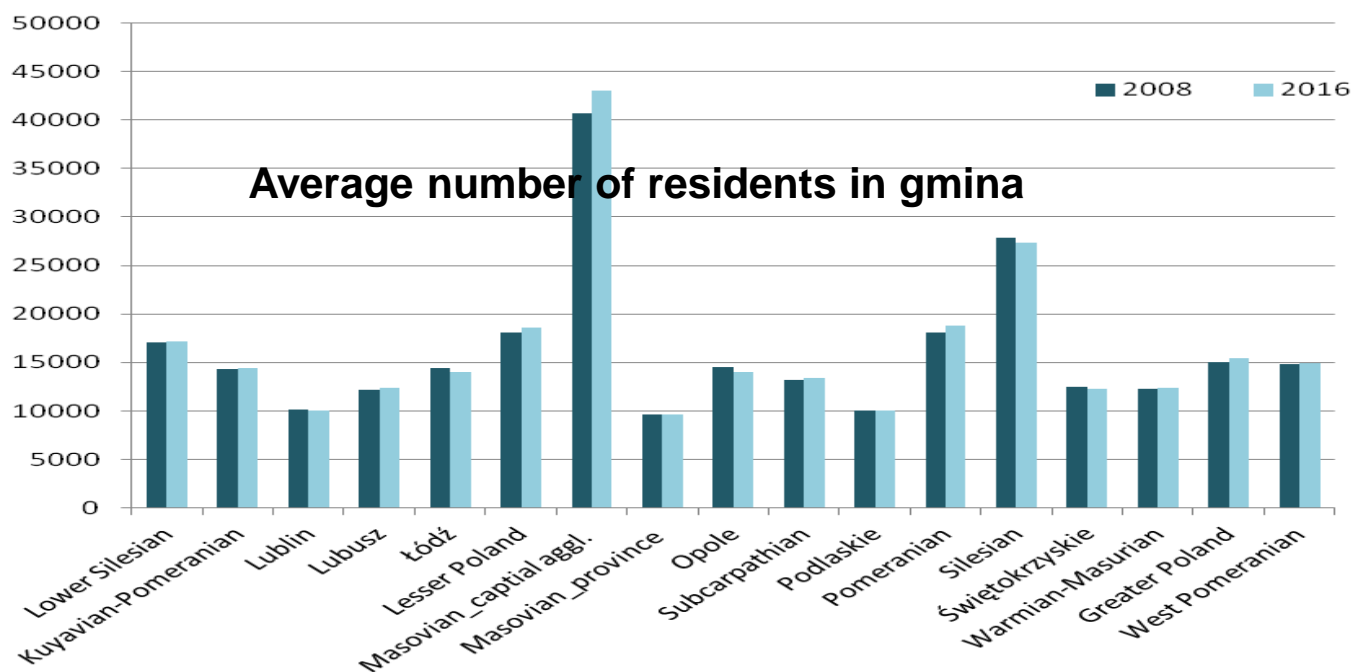
Lower Silesian
Kuyavian-Pomeranian
Lublin
Lubusz
Łódź
Lesser Poland
Masovian_capital_aggl.
Masovian_province
Opole
Subcarpathian
Podlaskie
Pomeranian
Silesian
Świętokrzyskie
Warmian-Masurian
Greater Poland
West Pomeranian

Number of communes/gminas and average number of residents in gminas, by voivodship

Number of communes /gminas



Average number of residents in gmina



Key issues - research and evaluation types of questions

[Policy-relevant questions]

- ▶ ***How distribution of local deprivation (CWB) affects allocation of public resources?***

and vice-versa

- ***How public resources (subsidies) accrued to communes affect the level and distribution of local deprivation (CWB)?***

- given the EU's concern about social and territorial ***cohesion***, the issue arises about ***efficiency*** and ***equity***('spatial justice') of public resource allocation policy → whether or not, and where specifically the resources contribute to a (*beta-* or *sigma-*) ***convergence*** (Barro and Xavier, 1992) – for instance, through lessening inequalities of welfare / well-being of *communes* and residents?

Assumptions and hypotheses

The first working hypothesis:

H1: The less developed areas (i.e., more deprived communes/gminas, in terms of the local deprivation index (MILD), the bigger the amount of public resources accrued to them (as implied by *cohesion policy* and *spatial justice* principle);

as a consequence:

(i) it seems reasonable to expect a bigger range of improvement (reduction in local deprivation) among such communes (more deprived but more generously endowed); and

(ii) the level a commune's local deprivation can indicate the scope of 'demand for development' ; while reduction in it can serve as a measure of community (objective) wellbeing;

Local deprivation (MILD) and subsidies *per person* during the years 2004, 2008 and 2016.

Multidimensional Index of Local Deprivation by voivodship: 2004, 2008, 2016

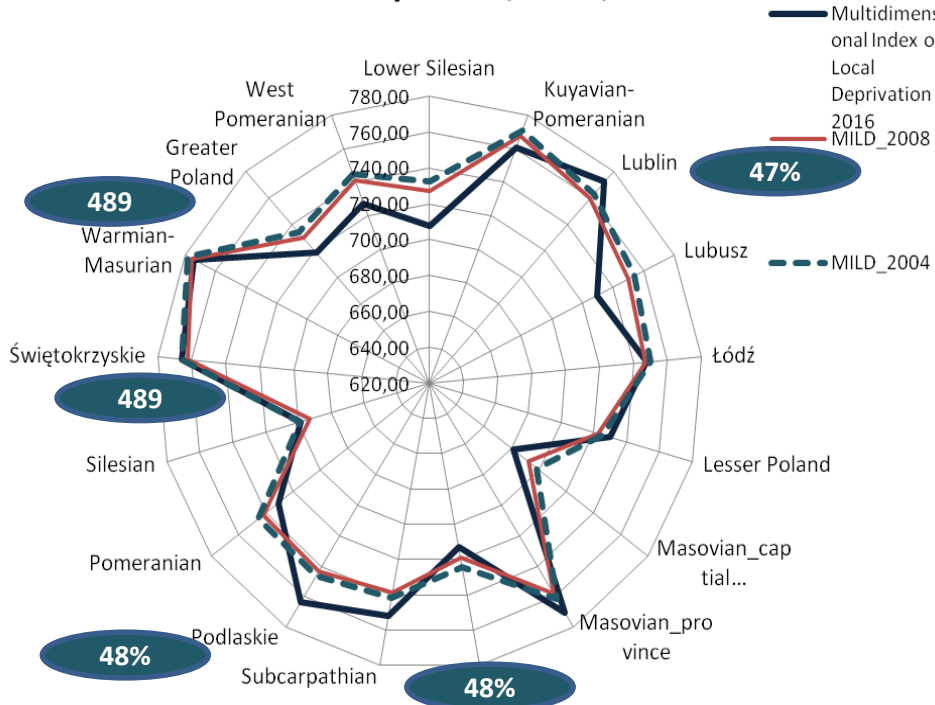
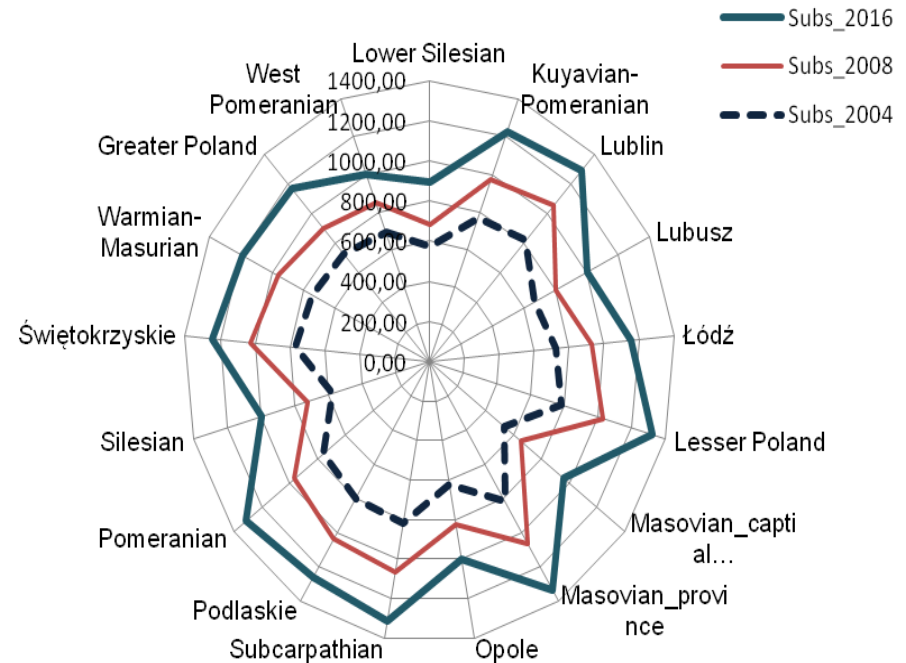


Figure .Subsidies to communes (*gminas*) in 2004, 2008 and 2016



Validity of MILD: strong correlation with GDPpc, also, with G-index of Min. of Finance_2017 ($r = 0.67$); According to EU_Eurostat last report on regions (voivodships) by GDPpc: 5 most 'deprived' regions in terms of MILD belong to group of 21 'least developed/poorest' regions in EU (2018): Lublin - 47% of EU-average GDPpc; Subcarpathian - 48%; Podlaskie - 48%; Świętokrzyskie - 49%; Warmian-Masurian - 49%. Only Masovian above EU-average - 109%.

Observations:

- Half of the 16 voivodships communes /gminas have experienced, on average, reduction in
 - their levels of local deprivation; such a reduction took place only in the previously less deprived and more developed regions (like Lower Silesian, Masovian-metropolitan , West Pomeranian) but also in Kuyavian-Pomeranian or Lubusz regions.
 - gminas in generally less developed regions-Lublin, Podlaskie, Subcarpathian and Lesser Poland - despite obtaining relatively higher resources (per person) show smaller (or negative) reduction, and remain still among the least developed

[A normative approach:] **spatial justice** in public resource allocation among localities /local level units

Preliminary results (at the level of regions) suggest that geographic targeting follows the *demand for development* also at the local level. It is also expected that the allocation takes place in accordance with the principles of 'spatial justice' – esp. in the Rawlsian version of distributive justice (the *maximin* principle) .

- Comparison of **actual** distribution of subsidies with the **simulated** one - on the ground of the proportionality of allocating subsidies acc. to the value of MILD and the gmina's population share (Okrasa et al., 2006; Okrasa 2014)

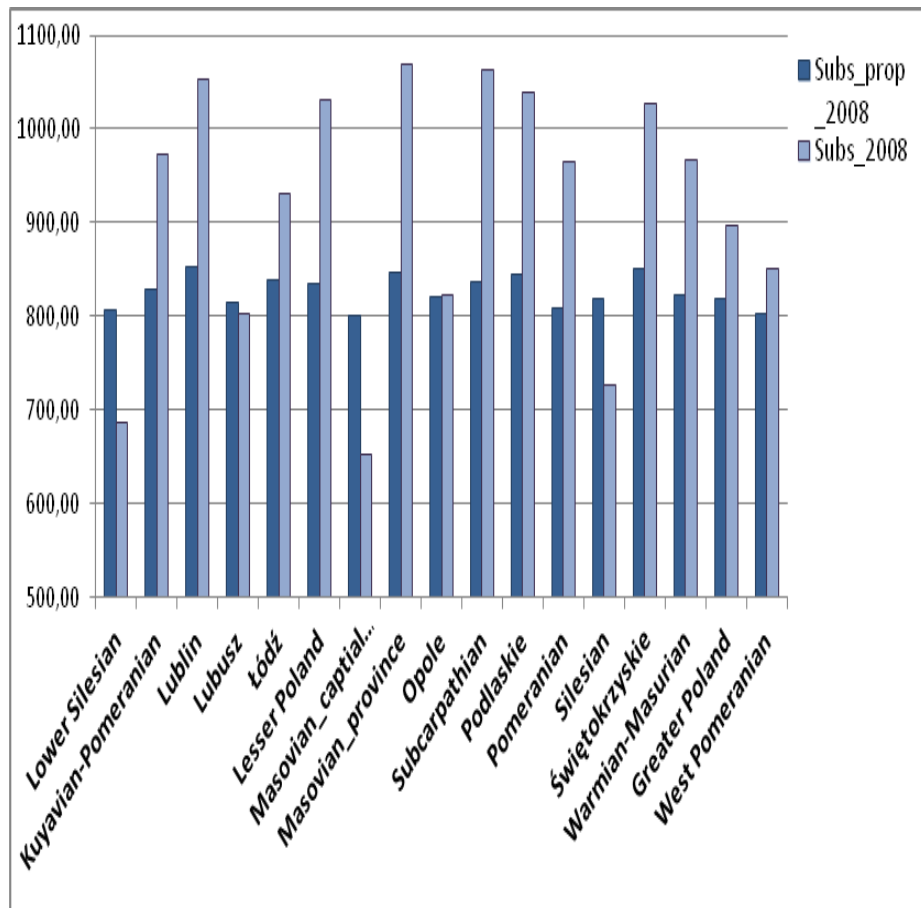
– so-called basic allocation formula:

$$b.a.f. \equiv \forall_{r \in S} \left[A(r) \approx \frac{I^r * P^r}{\sum_{i=1}^S I_i * P_i} \right]$$

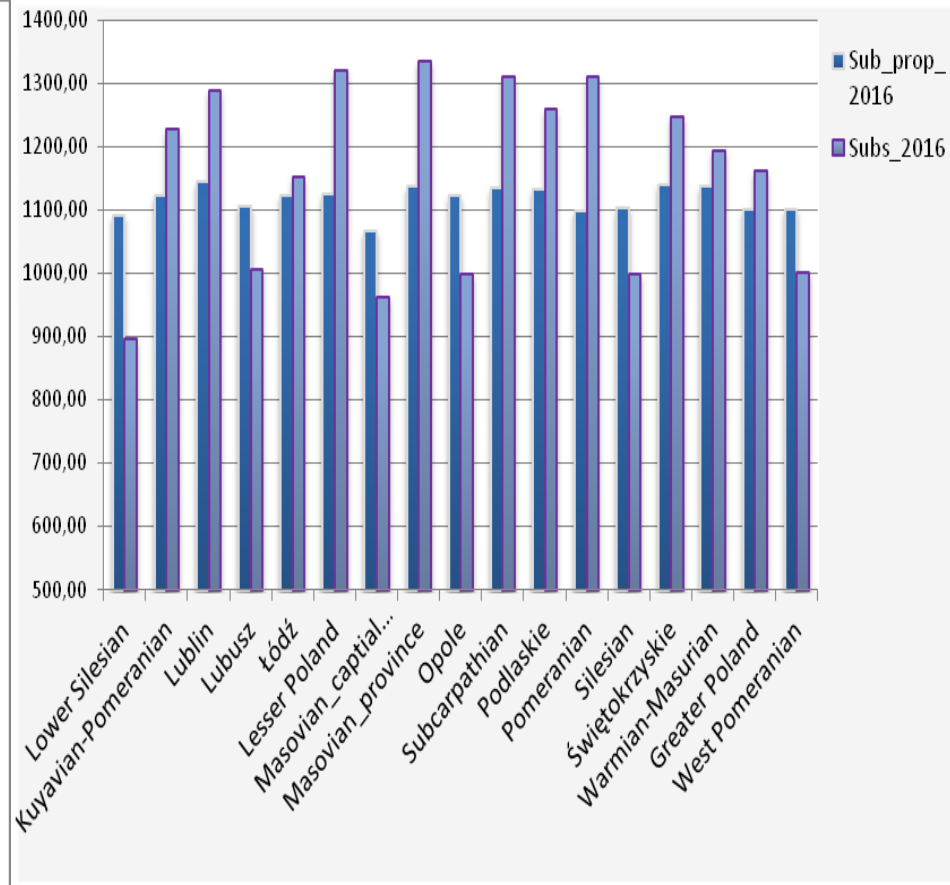
- where: I_i and P_i stand for indicator and population size of i th commune ($i = 1, \dots, S$, and S is a geographic stratum composed of r parts, while r refers to the stratum for which the allocation is being defined, $A(r)$; (op. cit., p. 1058)

Average subsidies *per person* actually accrued to communes (gminas) and simulated according to the principle of proportionality to needs (to local deprivation/MILD), in 2008 and 2016, by voivodship,

2008



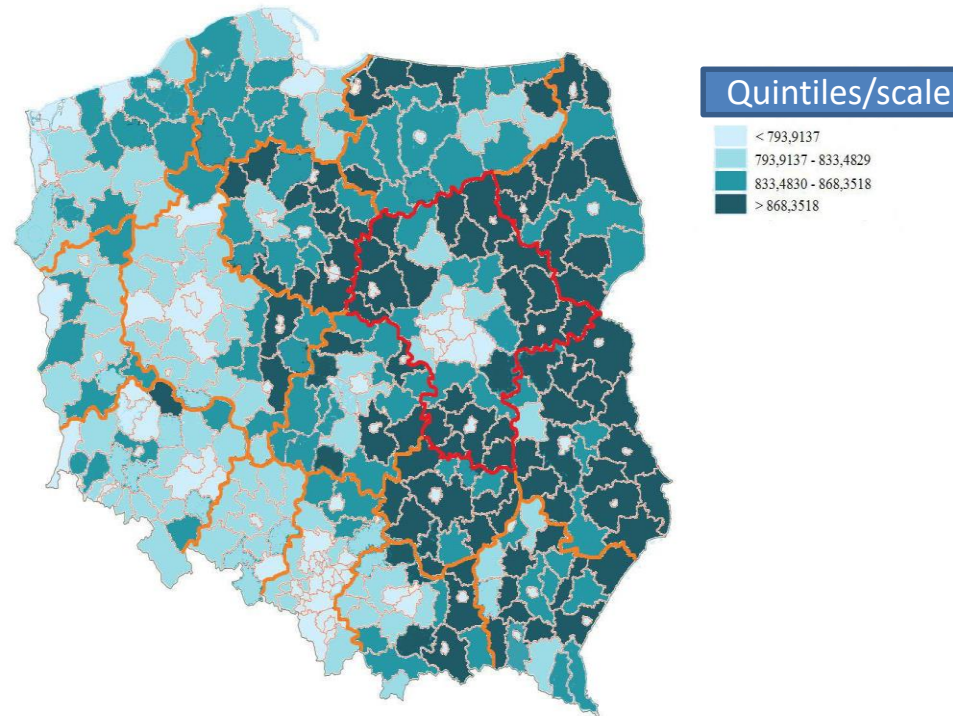
2016



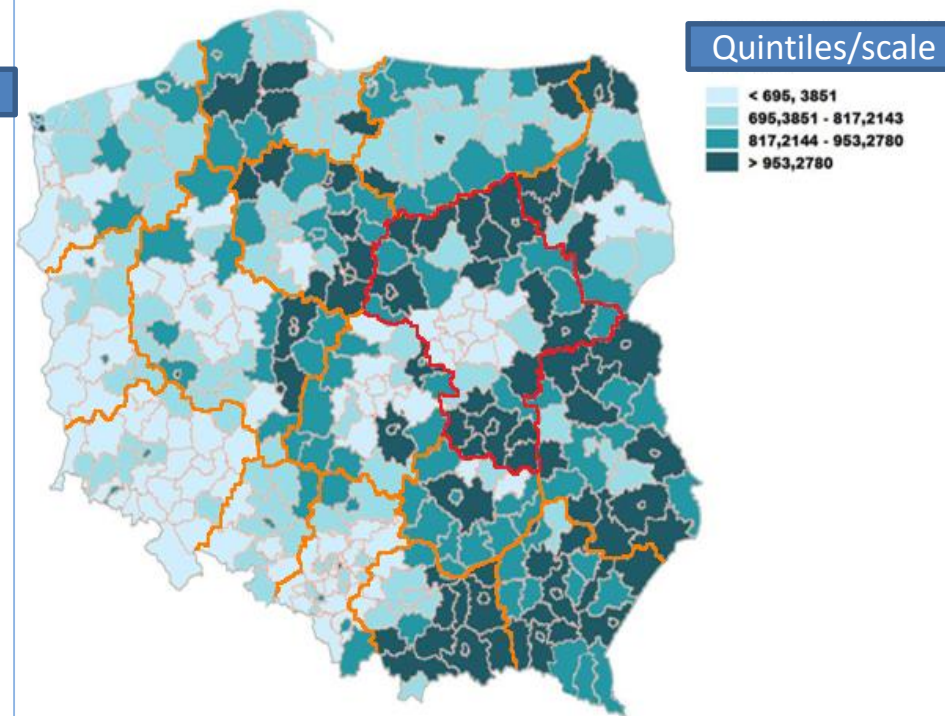
Distribution of subsidies across counties (NUTS4/powiats) by

A. Local deprivation index-proportional allocation principle,
B. Actual distribution of resources.

A. Distribution simulated according to Local deprivation index (2012)



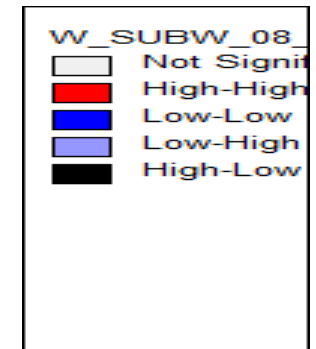
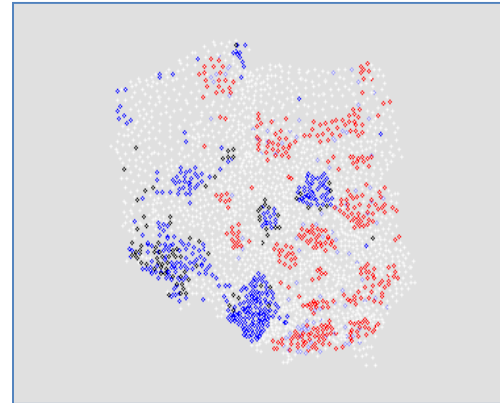
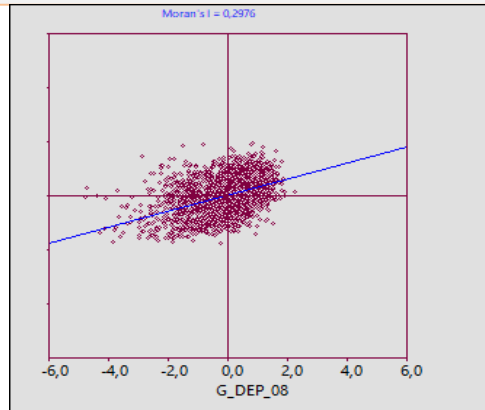
B. Actually made distribution of resources (2012)



Moran scatter plot and cluster map for local deprivation and subsidies in years: 2008 (Moran's I = 0.30), 2012 (Moran's I = 0.26), 2016 (Moran's I = 0.23)

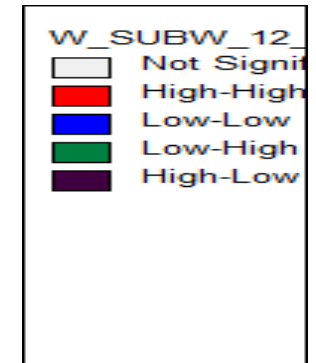
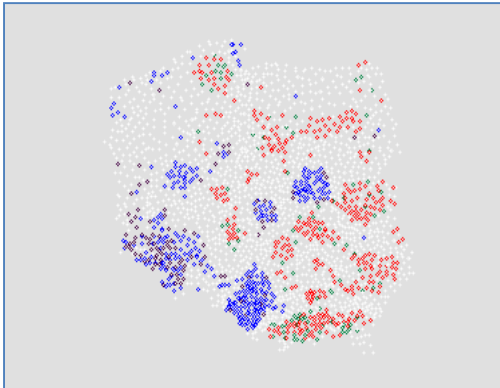
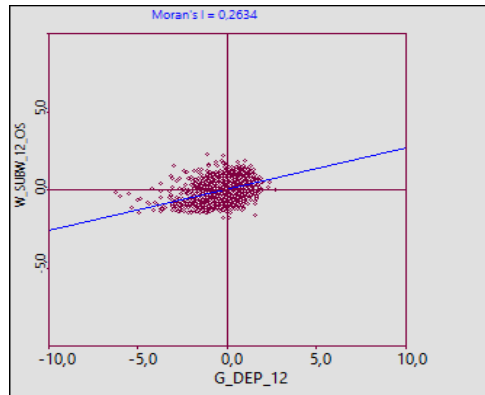
2008

Moran's I = 0.30



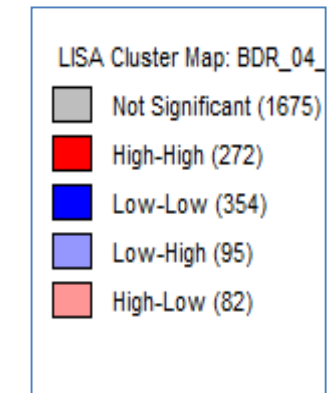
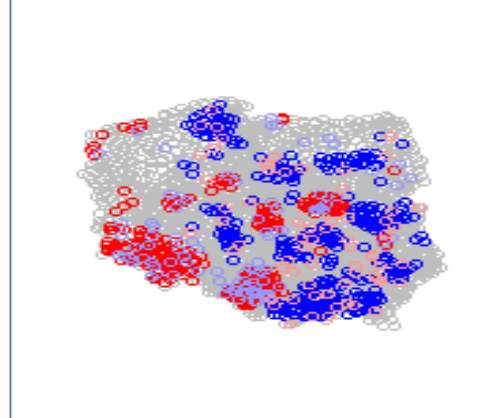
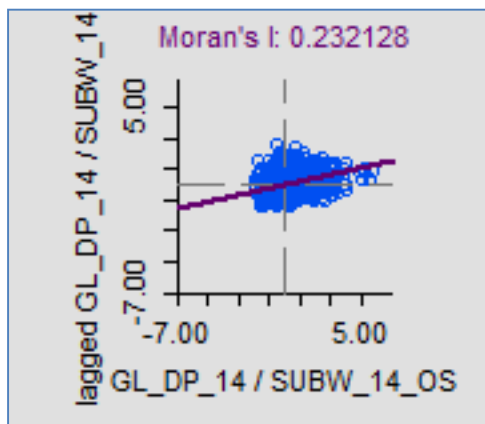
2012

Moran's I = 0.26



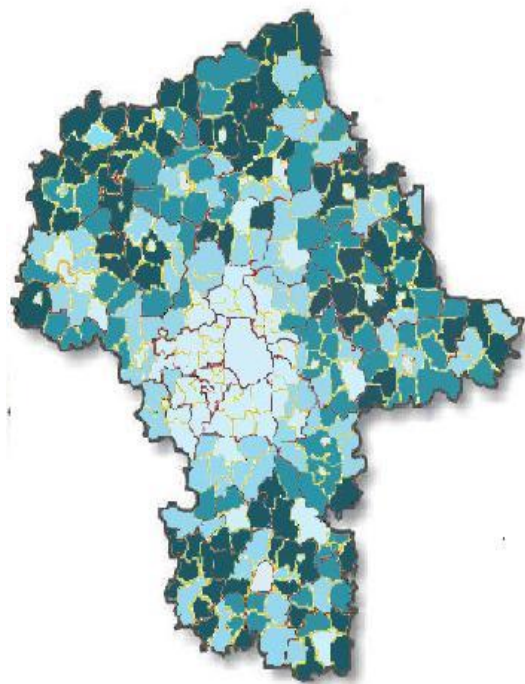
2016

Moran's I = 0.23

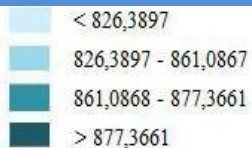


Comparison of actual allocation of subsidies to communes with the simulated allocation according to the proportionality principle (by the level of local deprivation / 'demand for development') – *Masovian*

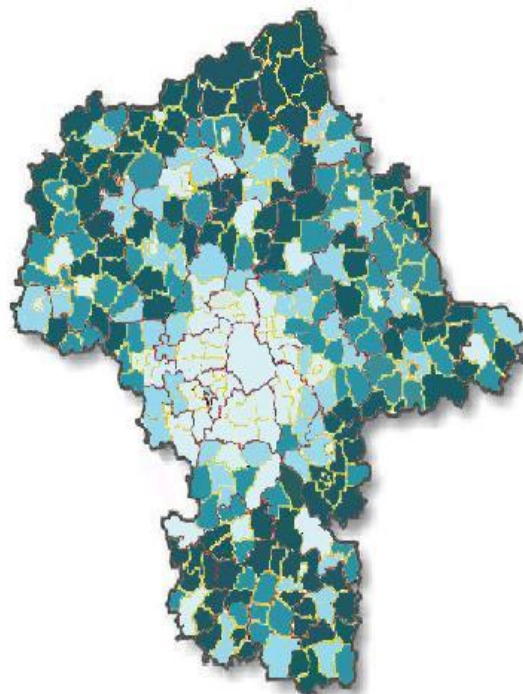
Distribution simulated



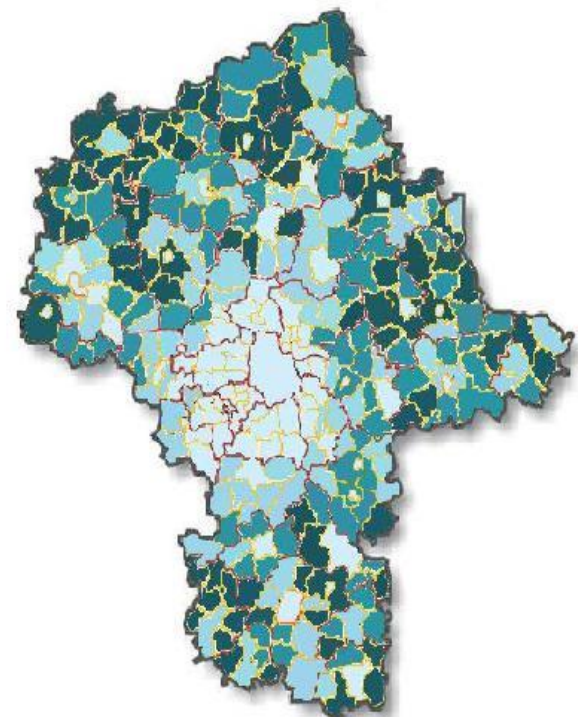
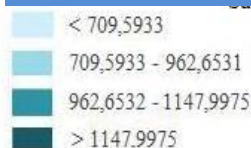
Subsidies simulated by b.a.f



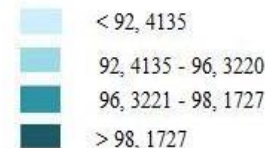
Distribution of 'real' subsidies Local deprivation MILD



Subsidies obtained

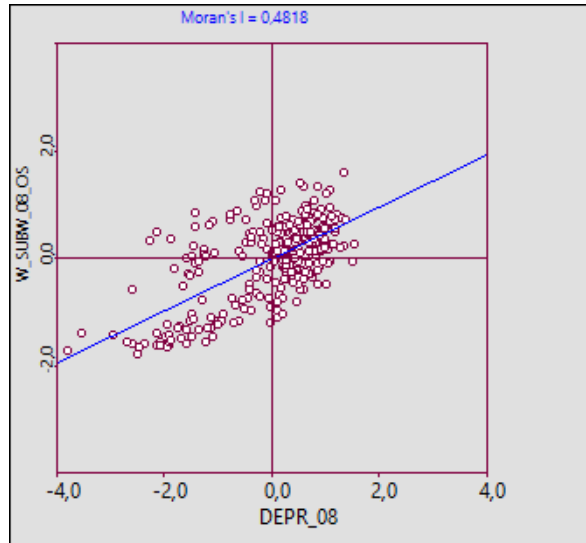


Local deprivation of gminas

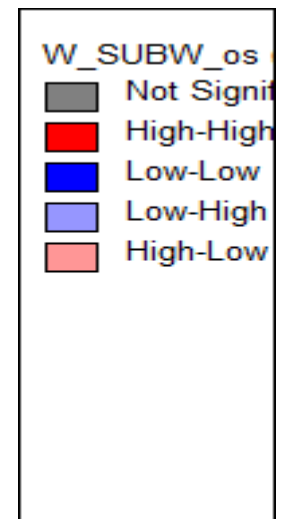
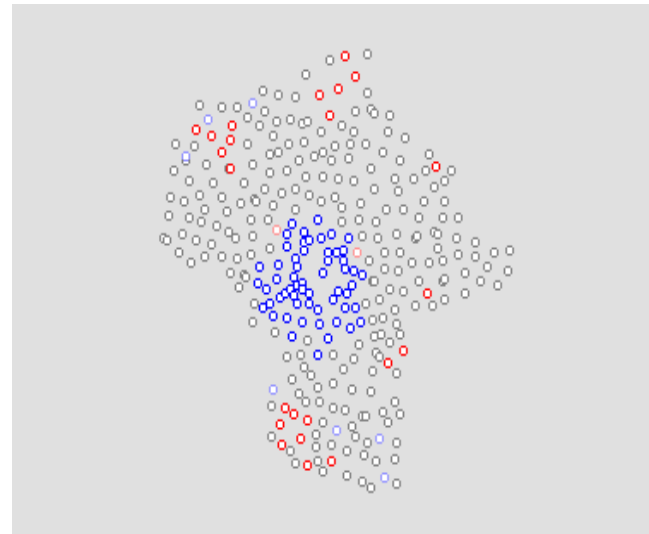
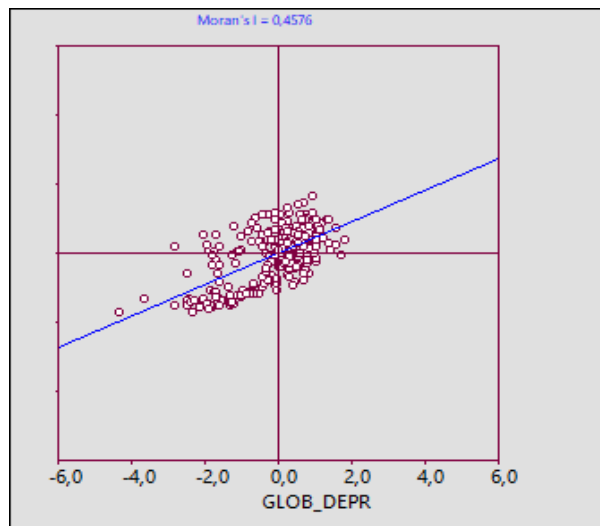
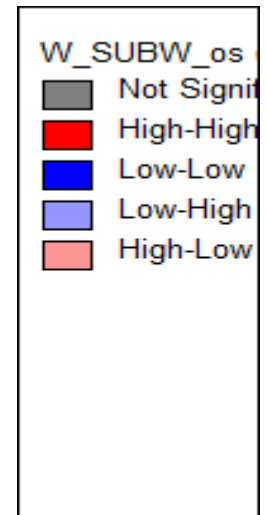
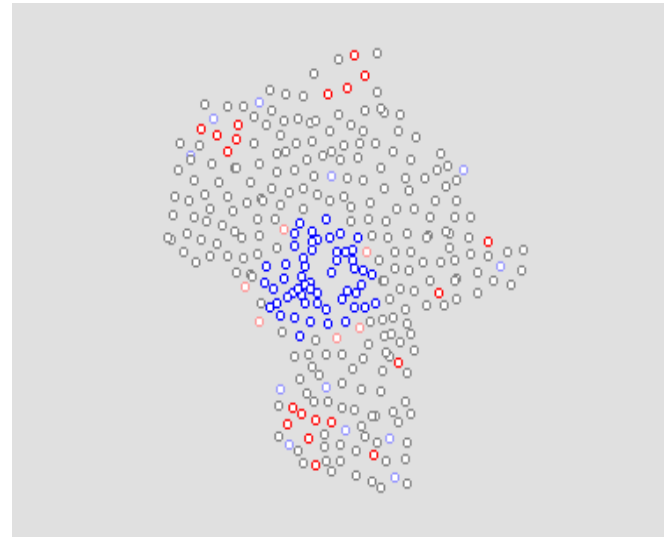


[Example for a region /voivodship] – Moran scatter plot cluster map of local deprivation (MILD) and subsidies *per person* accrued to gmina
Masovian: 2008 (Moran's $I = 0.48$), 2012 (Moran's $I = 0.46$)

2008



2012



Main factors influencing the level of subsidies accrued to communes (gminas) in years 2004-08-10-12-16; OLS

Model: $LnS_t = \beta_0 + \beta_1 LnMILD_t + \beta_2 CV_{Ct} + \beta_3 D_1 + \beta_4 D_2 + \beta_6 D_3 + \varepsilon$

Model - predictors	Subsidies <i>per person</i> accrued to gmina: 2004 –08-10-12-14-16					
	2004	2008	2010	2012	2014	2016
	Beta (t-stat.)	Beta (t-stat.)	Beta (t-stat.)	Beta (t-stat.)	Beta (t-stat.)	Beta (t-stat.)
Constant	(-6.855)*	(-14.758)*	(-10.126)*	(-4.605)*	(-8.342)*	(-10.447)*
•LnMultidimensional Local Depription	0.365 (19.853)*	0.527 (27.508)*	0.420 (20.536)*	0.332 (17.250)*	0.384 (19.081)*	0.457 (22.232)*
•Coeff.of Var.(within counties /powiats)	-0.152 (-10,191)*	-0.142 (-9,954)*	-0.170 (-11,045)*	-0,186 (-11,876)*	-	-
•Urban	-0.130 (-6.846)*	-0.071 (-3.820)*	-0.108 (-5.445)*	-0135 (-6.889)*	-0.031 (1.522)	-0.003 (-0.141)
•Rural (Mixed U-R omitted)	0,305 (17.177)*	0,173 (9.853)*	0,196 (10.518)*	0,261 (14.098)*	0.238 (11.978)*	0.185 (9.298)*
$R^2_{adj.}$	0.448	0.500	0.432	0.409	0.307	0.328
$F(4, 2\ 473)$ *) $p < 0,01$	503.198*	619.549*	471.506*	429.323*	346.656*	402.390*

Results – *comments on allocation of subsidies*

The model fits data well providing a robust base for making predictions of the level of subsidies being accrued to communes from the knowledge of their characteristics (predictors) included.

- 1) The value of ***the local deprivation (MILD) significantly influences the decision about the level of subsidies***: more deprived communes obtain bigger share of public resources (as above). It means that the applied mechanism of geographic targeting may contribute to the objectives of cohesion policy.
- 2) Negative slope of the β_2 coefficient – for the ***relation between inequality among communes (within county) and the level of deprivation (MILD) - agrees with the expectations*** suggested by Williamson's hypothesis (1965) [that relation between inequality and the level of local development is shaped as an inverted U, like Kuznets' hypothesis for inequality of income distribution and GDP (cf. Chakravorty 2006)]: gminas in more differentiated areas (counties/powiats) are on general less deprived, and vice-versa = gminas in more deprived powiats tend to be less differentiated amongst themselves.

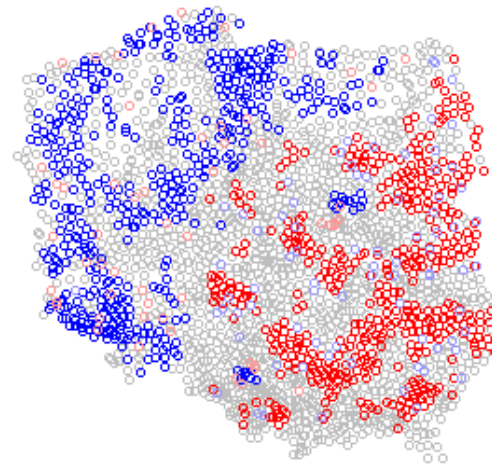
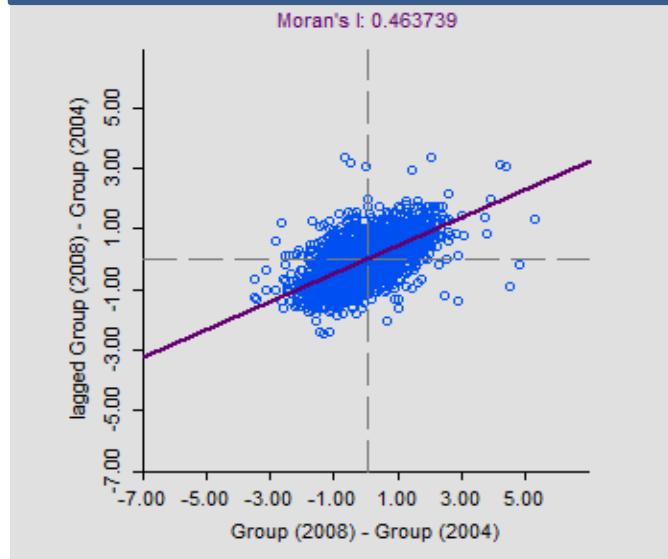
Assumptions and hypotheses –*contin.*

The second working hypothesis:

- H2: [Spatio- temporal relationships are not accidental]:
The dynamics of community wellbeing – esp. reduction in local deprivation over time – may take on different forms (trends) due to differences existing among communes constituting the nearest spatial environment /'neighborhood' (a more homogenous or more heterogenous neighborhood) in terms of such features as local deprivation or some of its component items
– consequence [importance and exploitation of]:
 - (i) changes in spatial patterns of association (autocorrelation) over time;
 - (ii) changes in inequality of deprivation

Autocorrelation of time differentials in gmina's (A1) local deprivation and (A2) of subsidies accrued to gmina – between 2004 and 2008

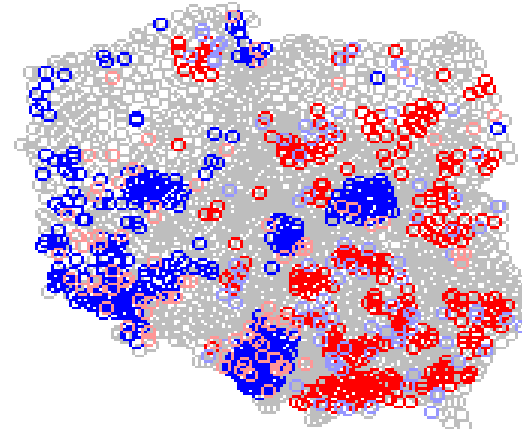
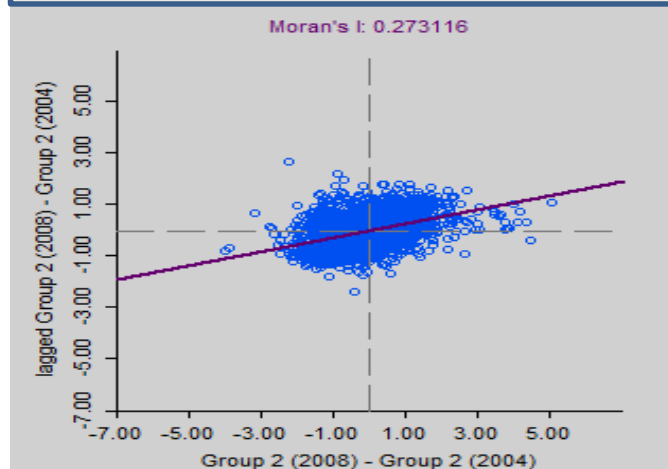
A1. Local deprivation (MILD) 2004-2008; Moran's I = 0.46



Differential LISA Cluster Ma

- Not Significant (1411)
- High-High (462)
- Low-Low (462)
- Low-High (87)
- High-Low (56)

A2. Subsidies per person accrued to gmina ,2004-2008; Moran's I = 0.27

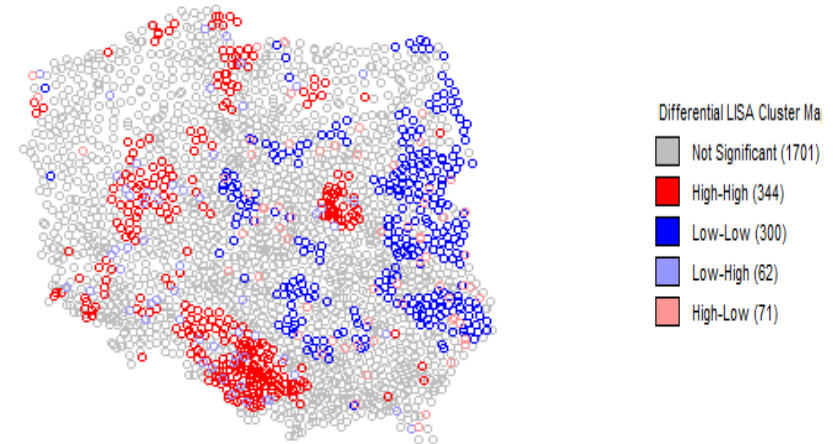
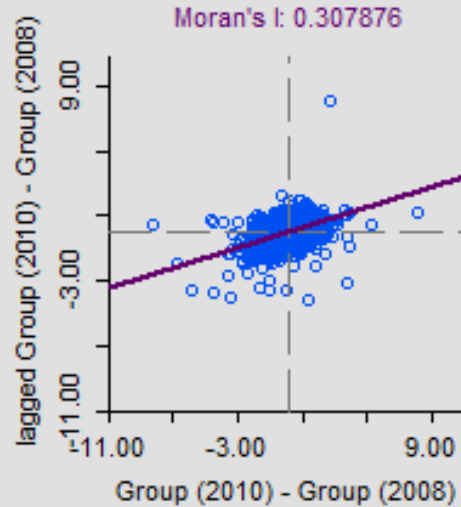


Differential LISA Cluster Ma

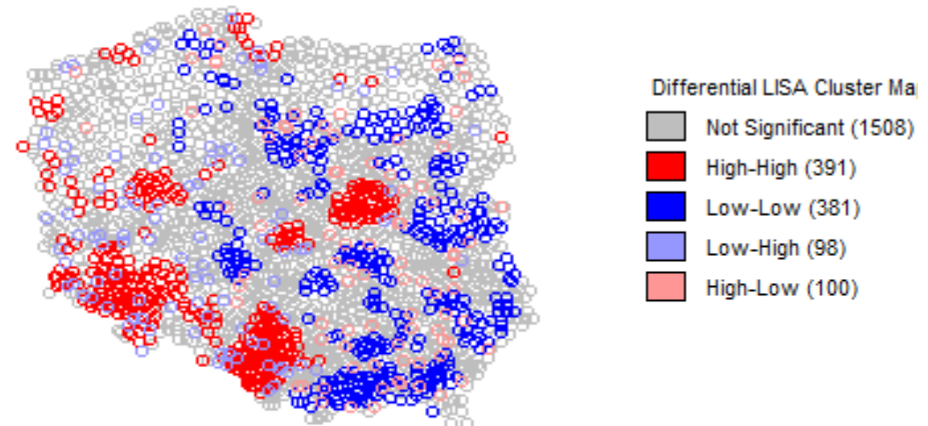
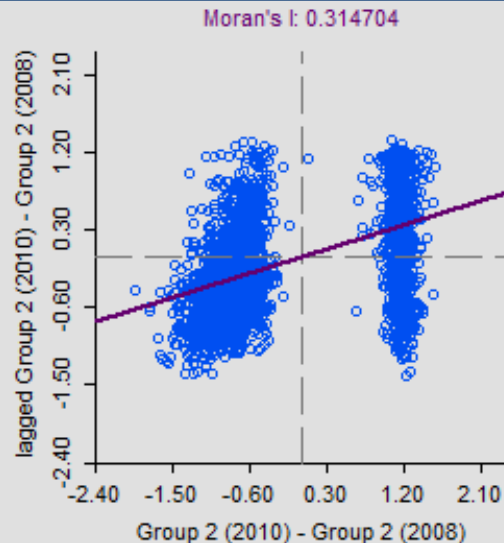
- Not Significant (1601)
- High-High (326)
- Low-Low (367)
- Low-High (100)
- High-Low (84)

Autocorrelation of time differentials in gmina's (B1) local deprivation and (B2) of subsidies accrued to gmina – between 2008 and 2010.

B1. Local deprivation (MILD) 2008-2010; Moran's I = 0.31

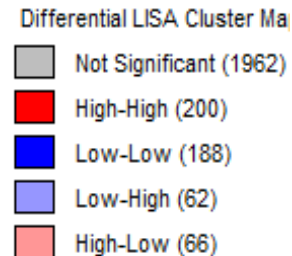
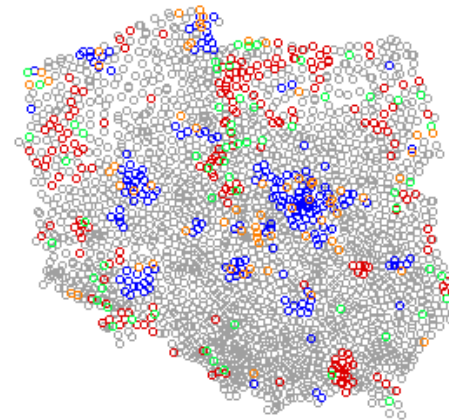
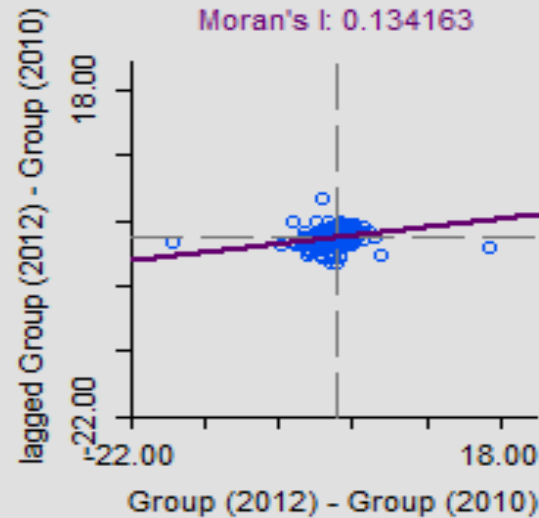


B2. Subsidies per person accrued to gmina ,2008-2010; Moran's I = 0.31

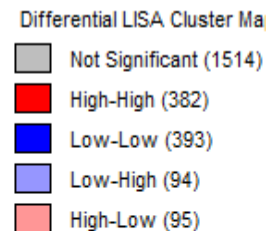
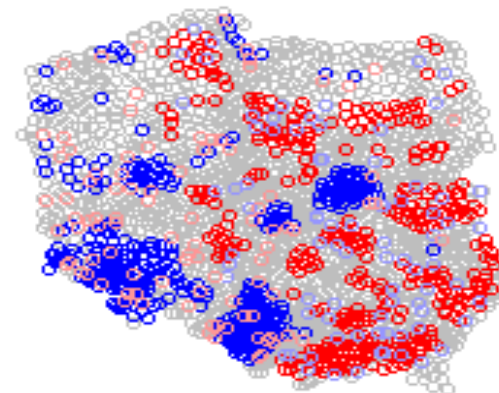
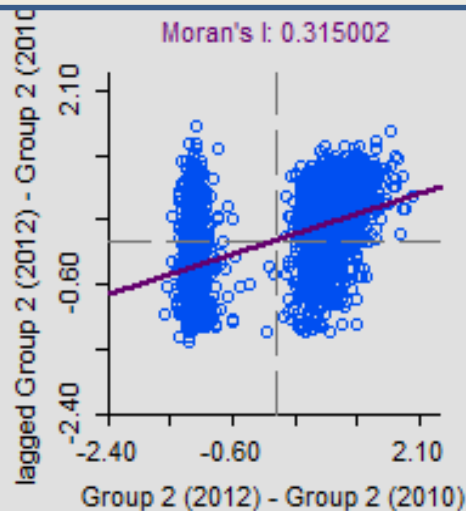


Autocorrelation of time differentials in gmina's (C1) local deprivation and (C2) of subsidies accrued to gmina – between 2010 and 2012.

C1. Local deprivation (MILD) 2010-2012, Moran's I = 0.13

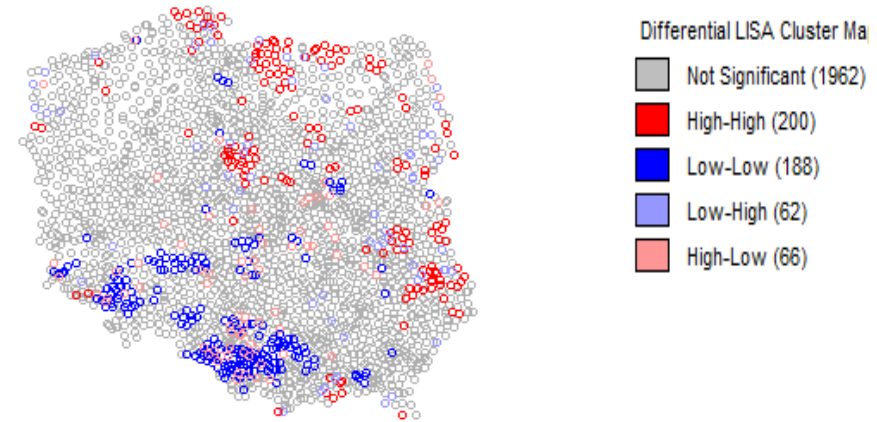
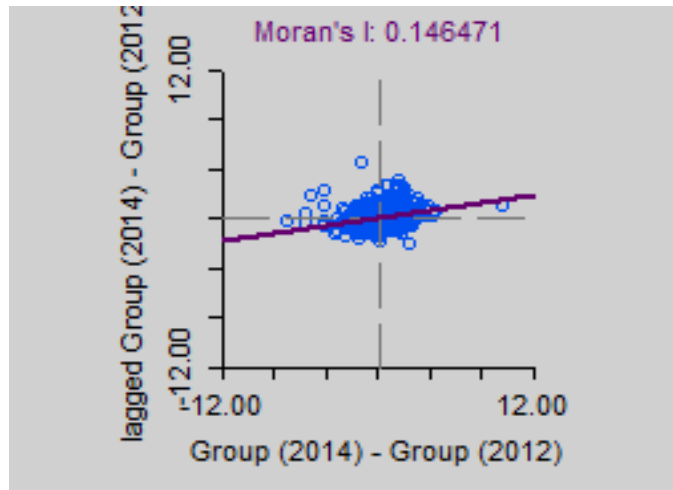


C2. Subsidies per person accrued to gmina, 2010-2012; Moran's I = 0.32

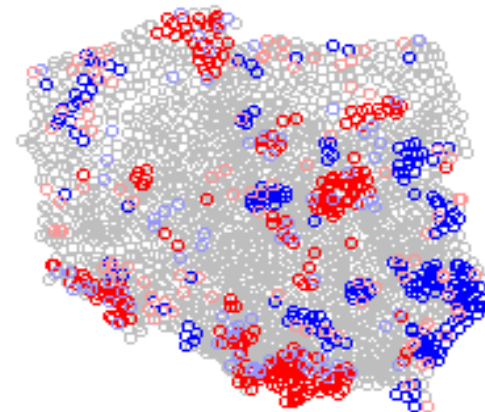
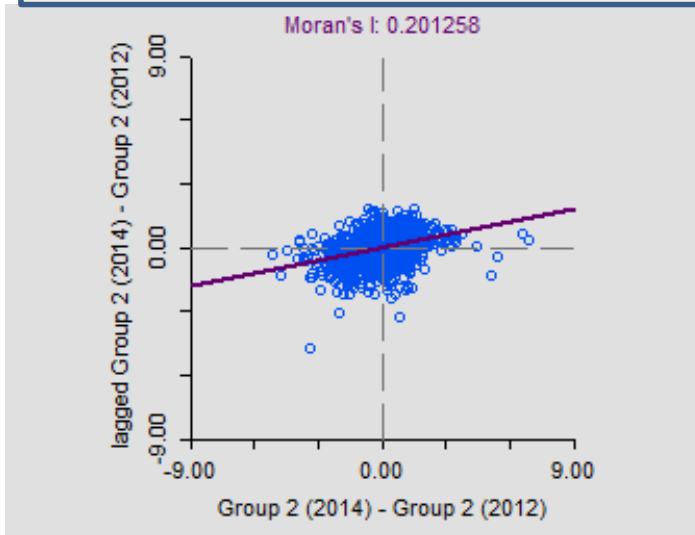


Autocorrelation of time differentials in gmina's (C1) local deprivation and (C2) of subsidies accrued to gmina – between 2012 and 2014.

D1. Local deprivation (MILD) 2012-2014, Moran's I = 0.15

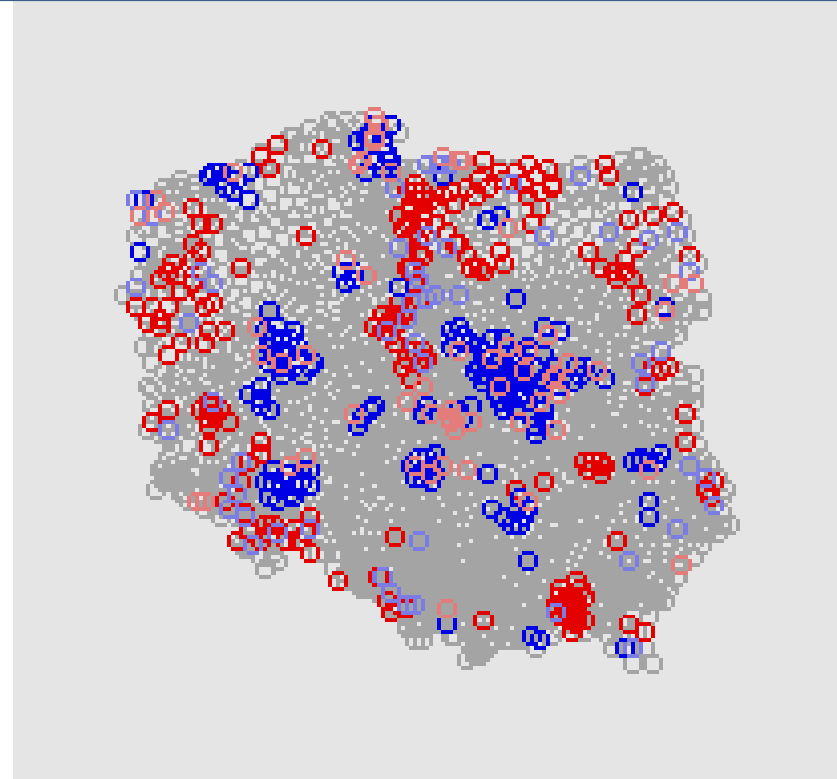
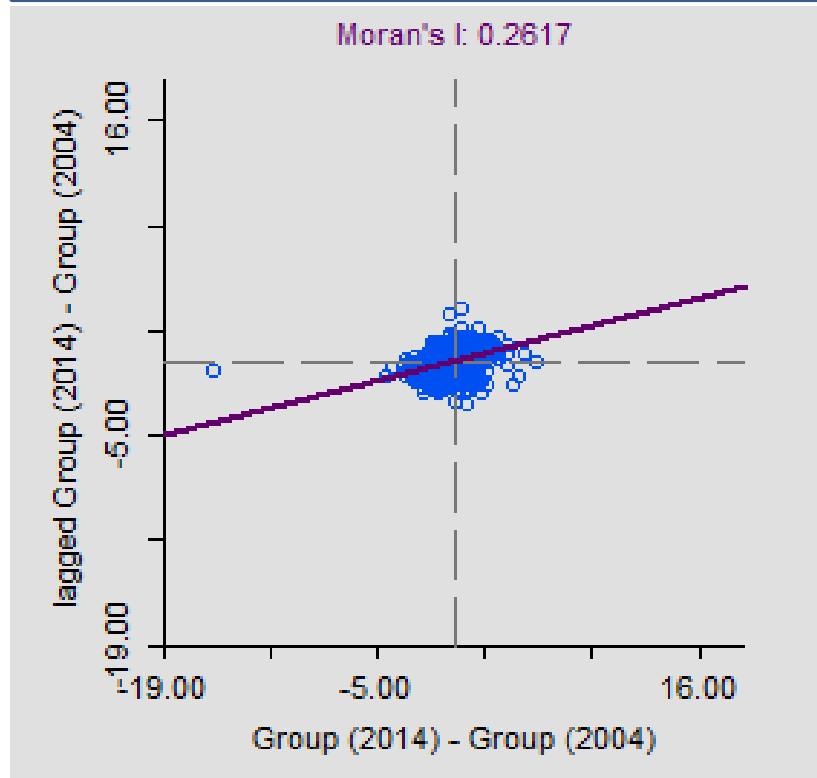


D2. Subsidies per person accrued to gmina, 2012-2014; Moran's I = 0.20

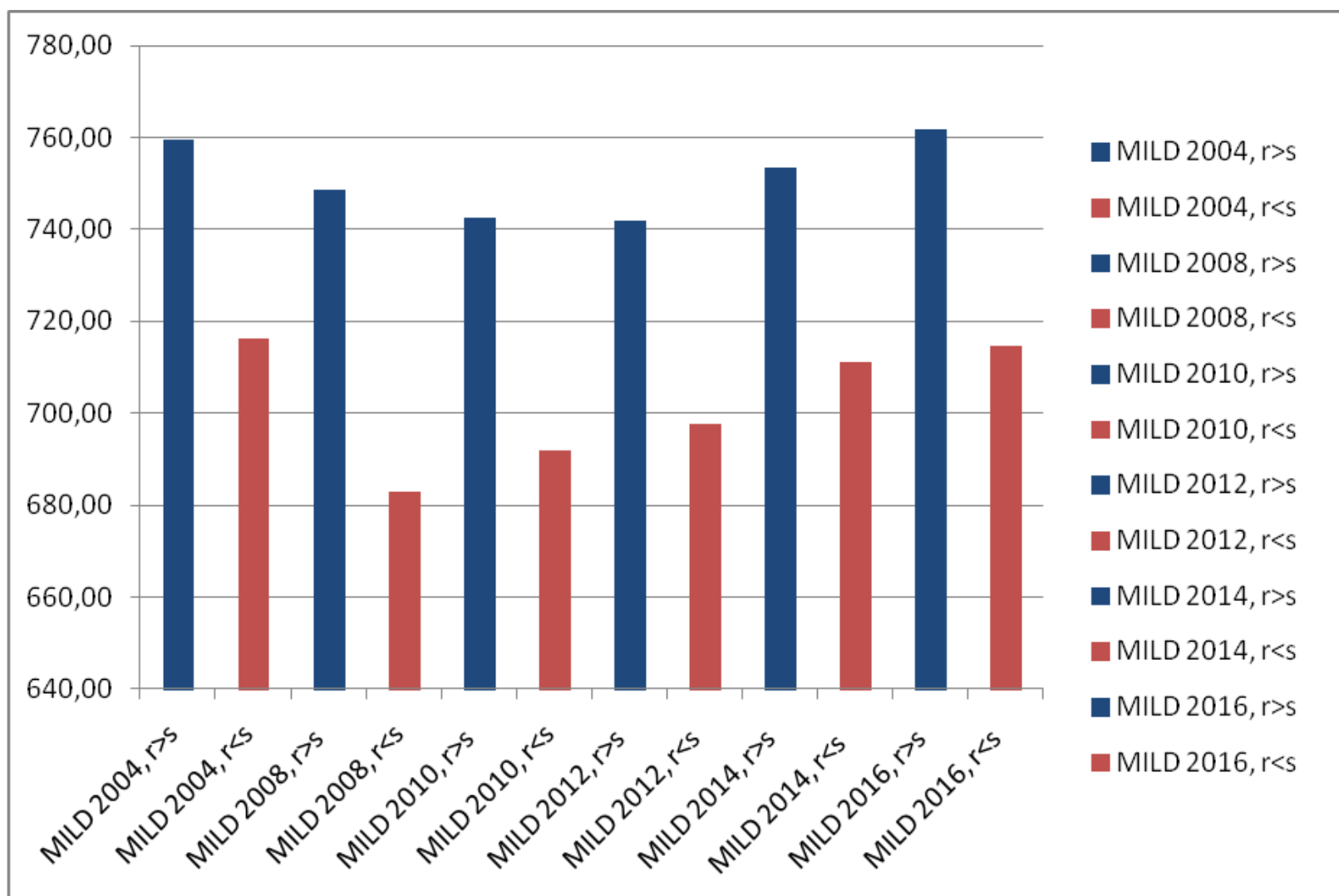


Autocorrelation of local deprivation over time: 2004-2014.

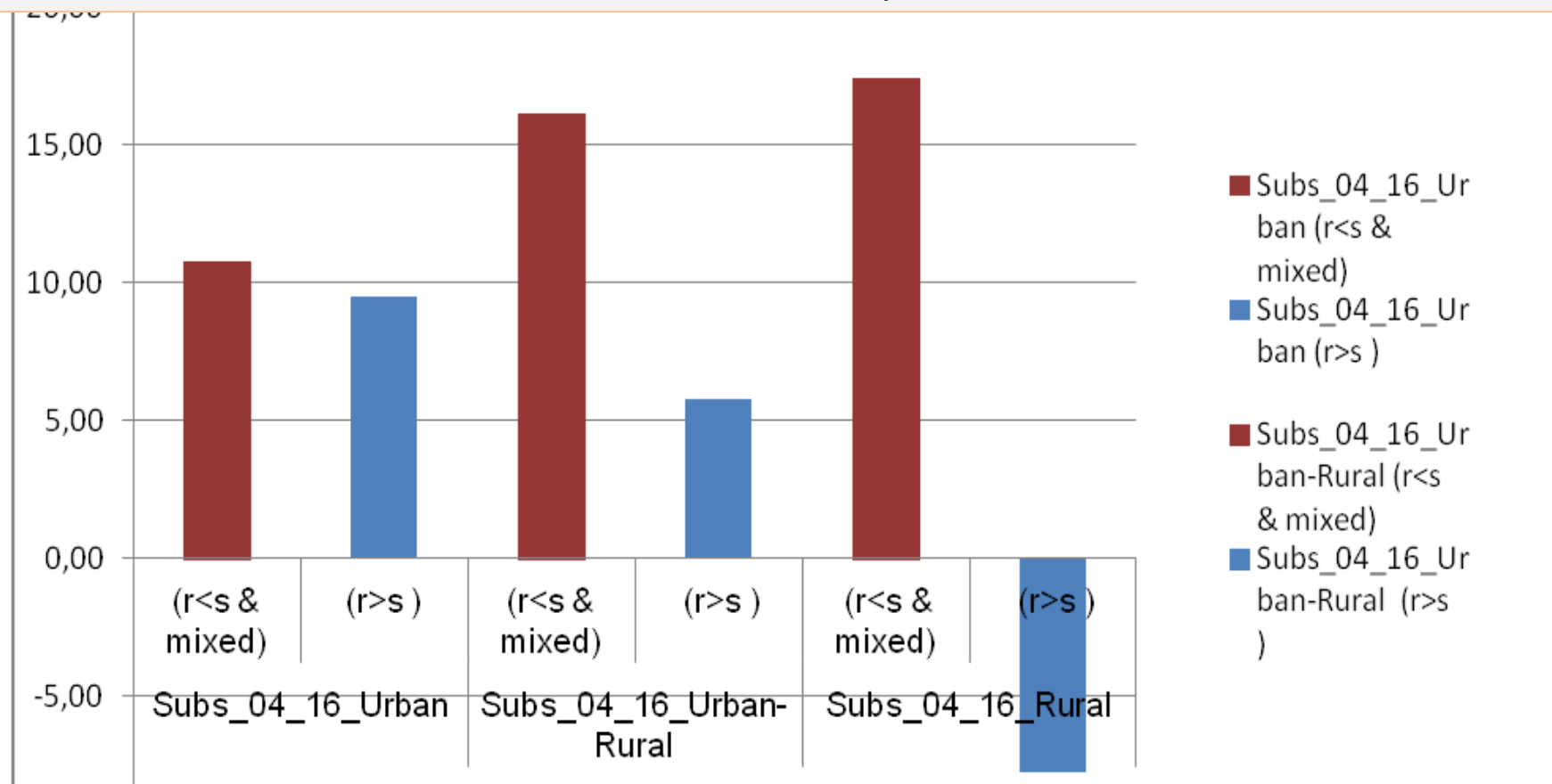
D. Local deprivation (MILD) 2004-2014, Moran's I = 0.26



Comparison of the average level of local deprivation (MILD) for communes which obtained (in a given year) a higher real ($r > s$, ■) vs. higher simulated subsidies ($r < s$, ■) according to the principle of proportionality to needs (to the level of local deprivation).

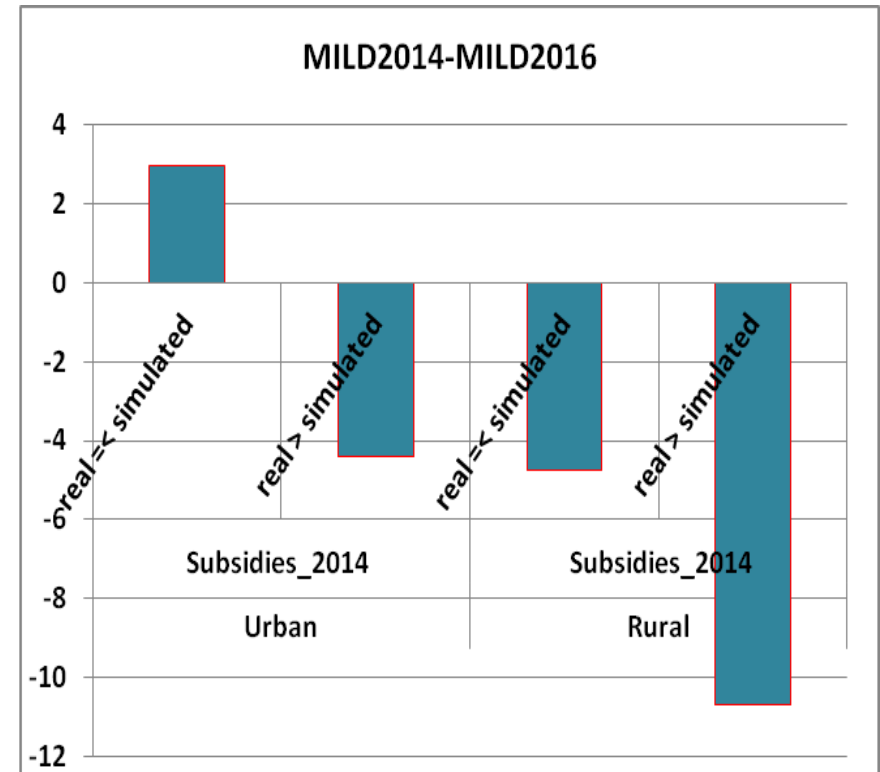
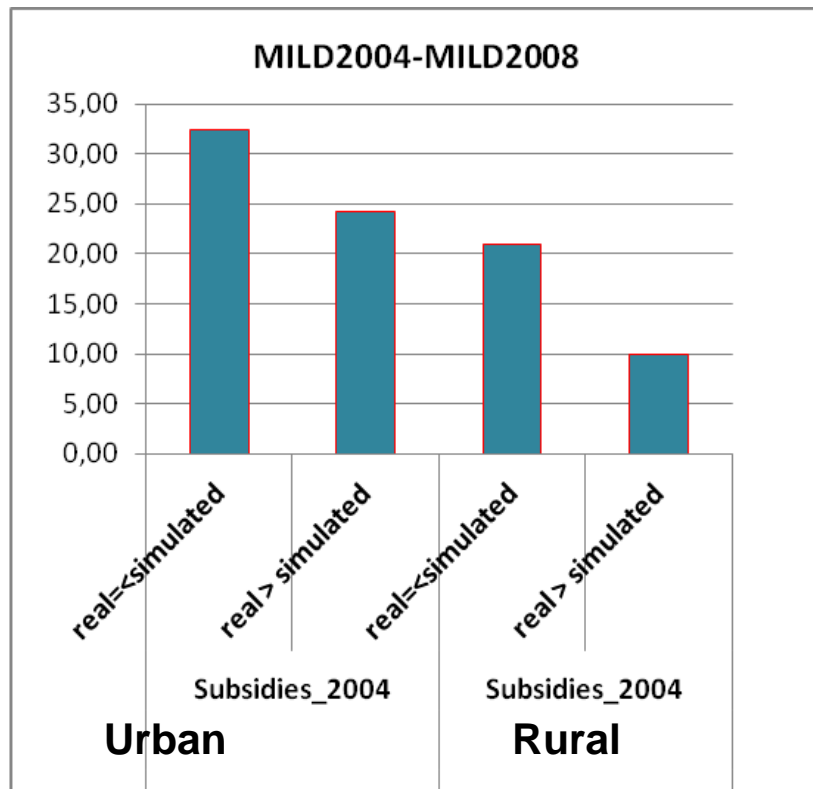


Changes in local deprivation (MILD) during 2004-2016 in communes divided by the prevailing pattern of differences between real and simulated subsidies ($r > s$ or $r \leq s$) and by the level of subsidies and type of residence (urban, rural and mixed)



Relatively biggest reduction in local deprivation can be observed among rural and mixed (urban-rural) communes which have been receiving subsidies at the lower level than implied by the principle of proportionality ($r < s$, due to, among others, being less deprived,); while for the rural communes obtaining more than 'fair' ($r > s$), the level of deprivation has still been growing, reaching on average slightly higher level in 2016 than it was in 2004.

Comparison of changes in the average local deprivation level (MILD) among communes divided by the prevailing pattern of differences between real and simulated subsidies ($r > s$ or $r < s$), according to the principle of proportionality



Although increase in local deprivation is not significant, the observed pattern of changes is opposite to the expected one – and is more visible among the communes obtaining actually bigger amount than implied by the principle of proportionality. This suggests that from the evaluative point of view two remarks can be valid: (1st) the important role of subsidies for reduction of the local deprivation, which perhaps would be larger otherwise, and (2nd) relevance of the counterfactual state /outcome which could have been possible if the more deprived communes would not have actually obtained relatively higher level of subsidies than the one predicted by the spatial justice.

A 'change score' regression model for evaluating effect of subsidies for gminas considered as 'treated by public intervention' /resource allocation (if $r > s$):

$$MILD_{i(t+r)} - MILD_{it} = \alpha + D_i * \beta + \varepsilon_i$$

Model predictors	2004-206	2004-2008	2008-2012	2012-2016
	Beta (Std.err)	Beta (Std. err)	Beta (Std. Err)	Beta (Std.err)
Constant	10.079** (0.810)	24.936** (0.854)	-1.679** (0.718)	-13.044** (0.584)
Subsidies real > simulated (D^*)	-15,731** (1.031)	-13.903** (0.991)	10.748** (0.849)	-10.979** (0.725)
Rural (Urban omitted)	5,403** (1.193)	7.239** (1.122)	-4.523** (0.970)	2,975** (0.837)
R^2_{adj}	0.11	0.10	0.08	0.10
**) $p < 0.001$				

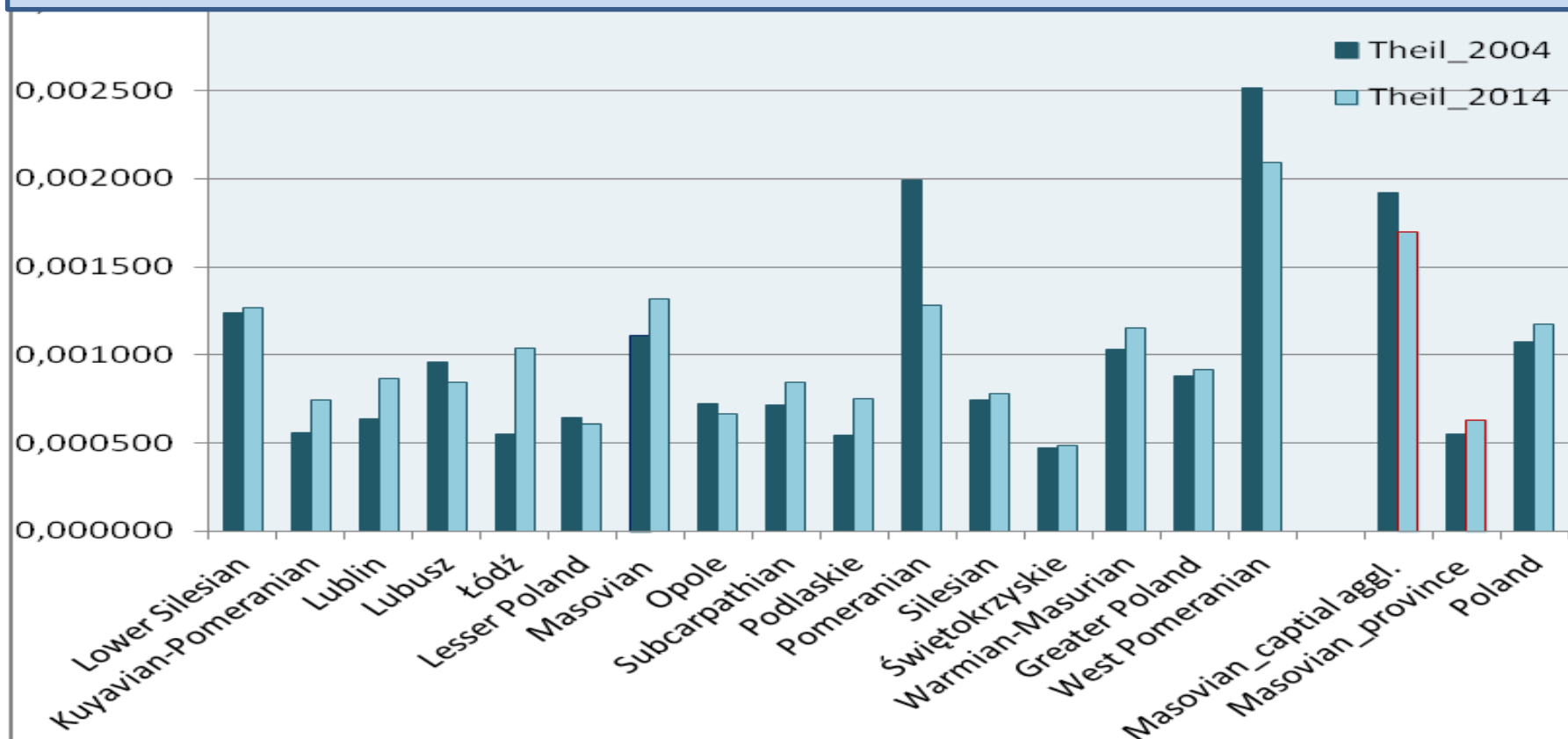
Toward spatial cohesion? Influence of the community level of (overall) deprivation (MILD_2014) on the measures of subjective community wellbeing/CSWB – simple OLS regression (data from *Social Diagnosis_2013*)

Predictor:	1. Locality etc/LHS	2. Social relations /FSE	3. Life perspective 'here'	4. IWB /U-index (all activities)
Community deprivation /MILD_2014	- 0.027**	-0.120 **	-0.237**	-0.034**

**) $p < 0.01$

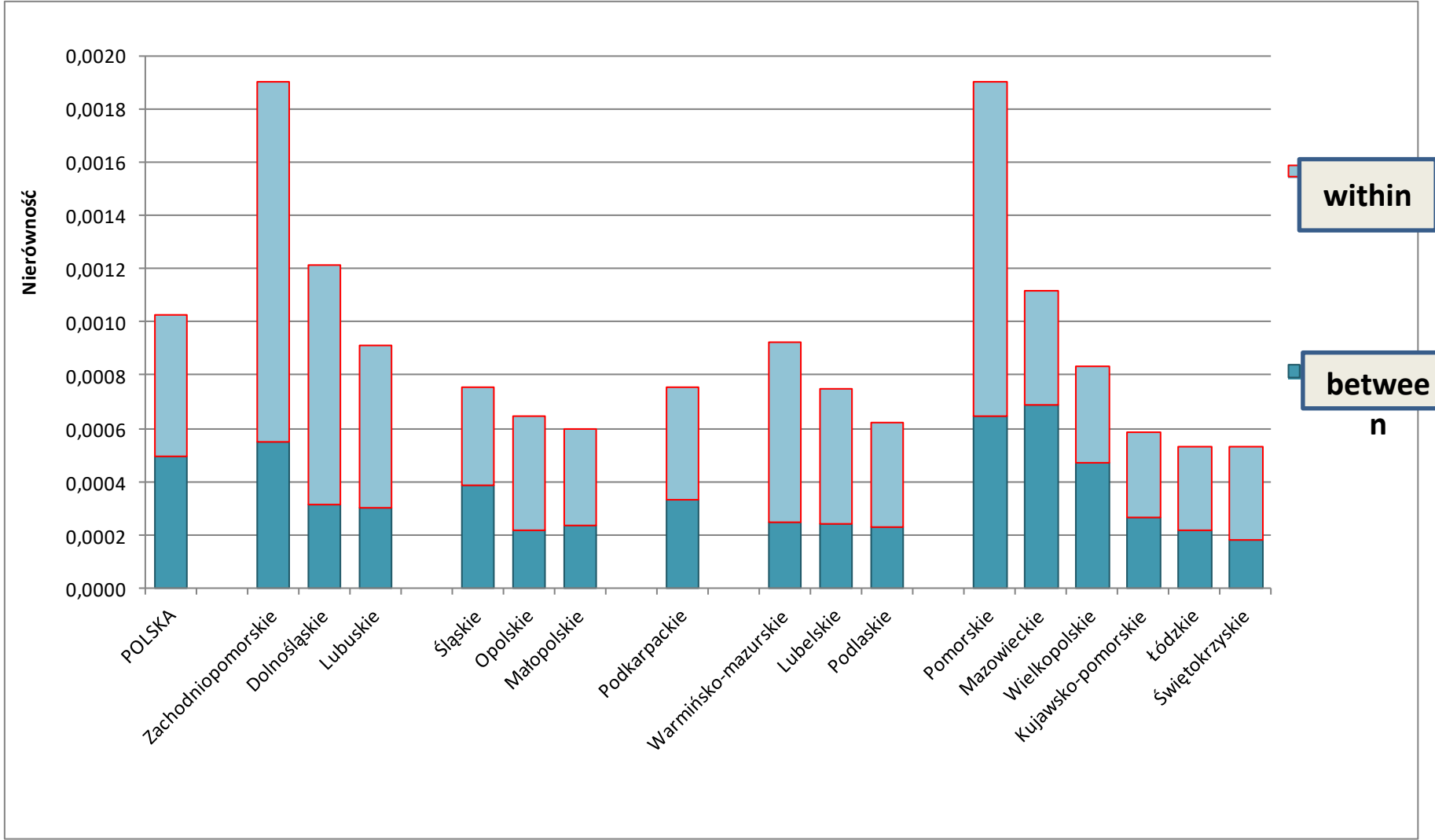
Spatial cohesion –contin. Does the local development - reduction in local deprivation due to public resources - contributes also to diminishing inequalities between communes (σ -convergence)?

Spatial inequalities of local deprivation (MILD) - Theil index, by voivodship, years 2004 ,2014



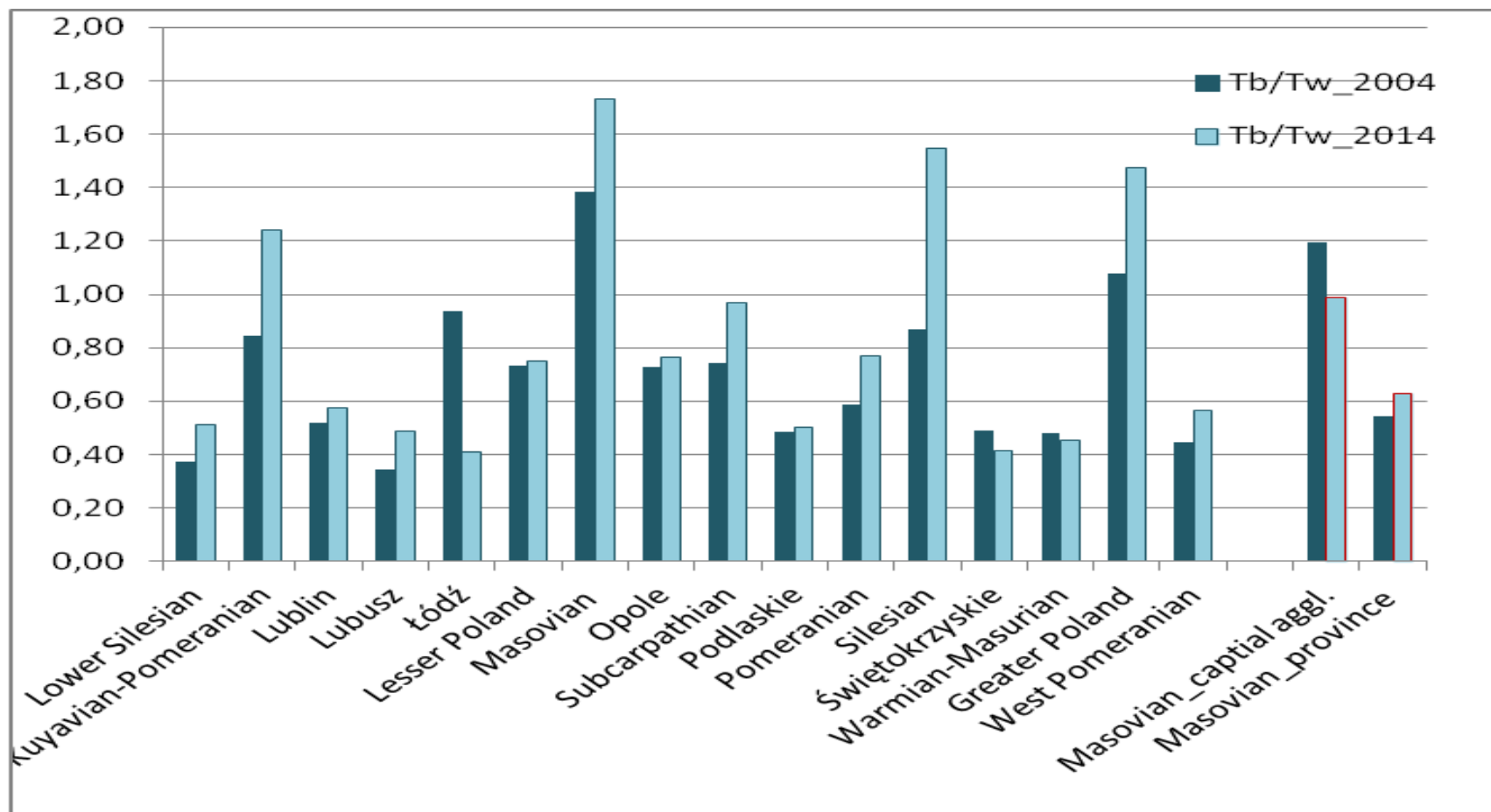
Few voivodships showed relatively high - above the country's level – inequalities in their communes (gminas) deprivation level in 2004: West Pomeranian, Pomeranian, Lower Silesian and Masovian; (panel A). Except for the first two, most of the rest demonstrates increase in inequalities over the 10 year period (until 2014), what is also evidenced by the increased ratio of between to within component of Theil index (panel B).

Decomposition of spatial inequalities of local deprivation (MILD) into ‘within-grup’ (within counties /powiats-NUTS4) and ‘between-counties’, by voivodship (2014).



B. Ratio of *between* to *within* spatial inequalities of commune local deprivation in counties (*powiats*), by voivodship.

2004 , 2014



Individual (Subjective) Wellbeing: TUS data-based measures

- Social indicators approach – attempts to exploit TUS data (Th. Juster; and others, e.g., F. Andrews, 80s.) :
 - survey research (day reconstruction techniques- e.g., day and week-recall data -TUS_2013)
- Psychometric measures
- Econometric research and econometric/psychometric combined approaches - Krueger and Khaneman et al., (2008) – indicator of emotion / negative /positive affects associated with activities / ‘time of unpleasant state’ - U-index :

$$U_i = \sum_j I_{ij} h_{ij} / \sum_j h_{ij} \quad (\text{in TUS}_{2013}: I = -1, 0, +1)$$

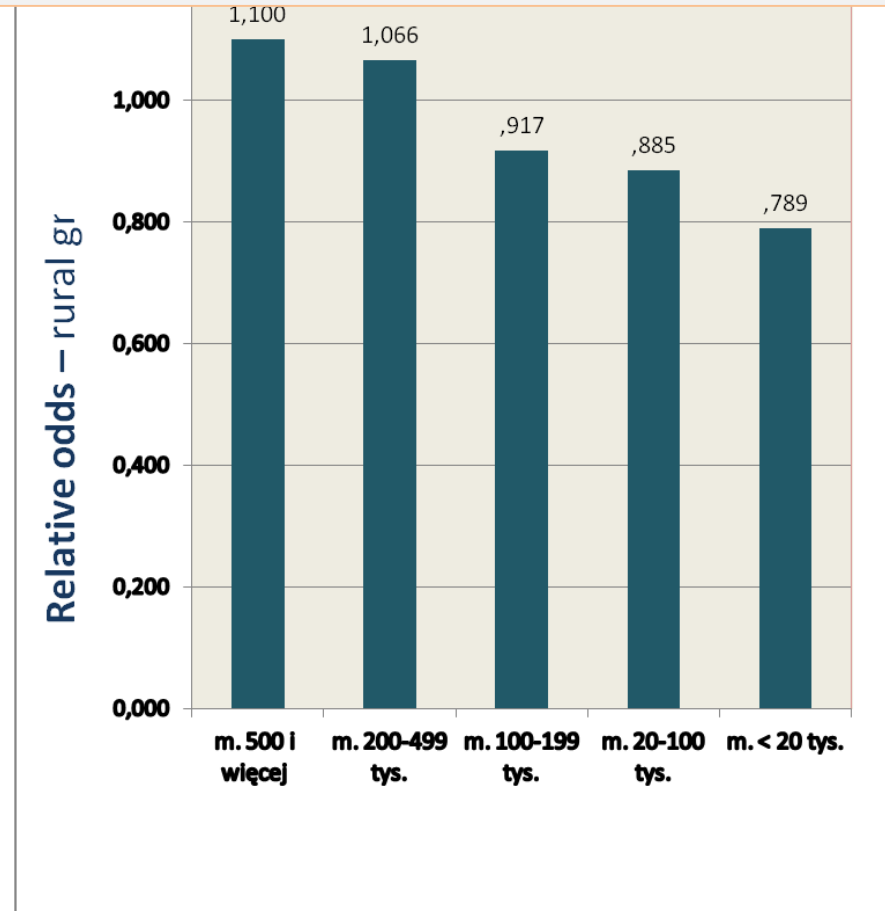
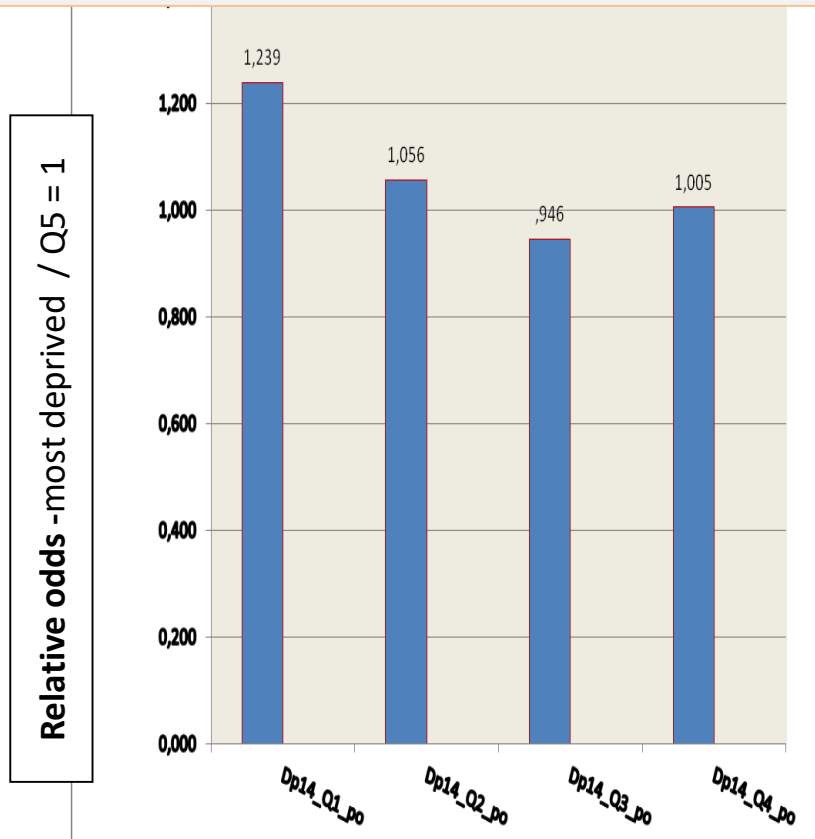
and $U = \sum_i (\sum_j I_{ij} h_{ij} / \sum_j h_{ij}) / N$ for N-persons / group in population

(used also in poverty research ubóstwa (subiektywnego poverty))

Odds of experiencing 'non-positive' feeling associated with activities, U - index, depending on

(a) the level of *local deprivation*/MILD

(b) the size of the living place



Approximation of 'life satisfaction equation' (eg. Clark, 2018)

$$\text{Life satisfaction} = \beta_1 Y + \beta_2 h + \theta' X + \varepsilon$$

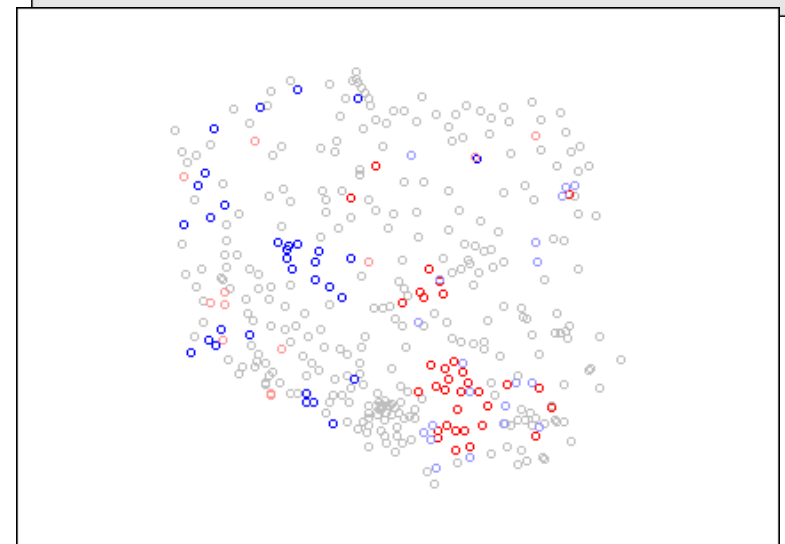
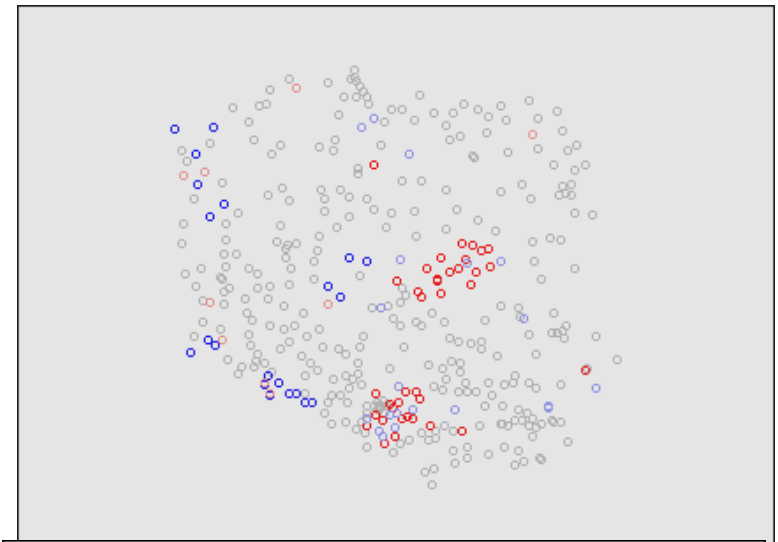
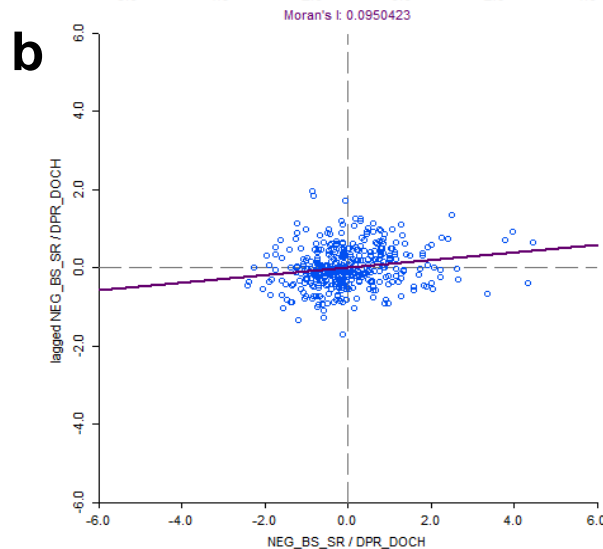
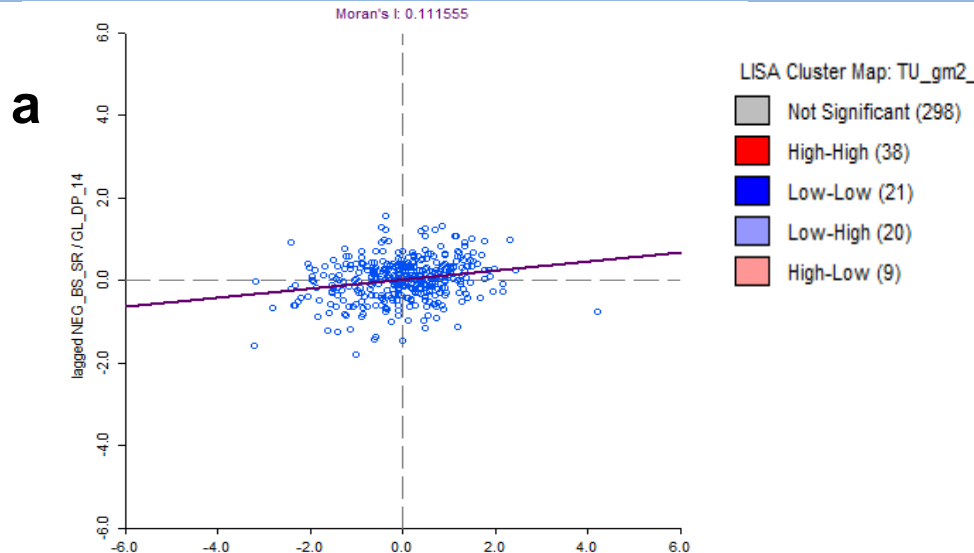
using TUS₂₀₁₃-data (U-index) and BDL-data (MILD₂₀₁₄).

Model -predictors	Standardized Coefficients Beta	t	Significance
Constant		32,279	0,000
Job_time main and additional	0,169	26,585	0,000
Income / monthly	-0,068	-10,667	0,000
Local deprivation_MILD14	-0,018	-1,826	0,068
Subsidy real-simulated compared (r>s vs. r=<s)	0,509	7,438	0,000
Local deprivation Mild14*Subsidy compared (r>s)	-0,446	-6,718	0,000
Gm_urban	-0,114	-8,623	0,000
Gm_urban-rural (<i>rural-omitted</i>)	-0,176	-14,407	0,000
F df(7,31141) = 202.060			

LISA/Local Indicators of Spatial Association:

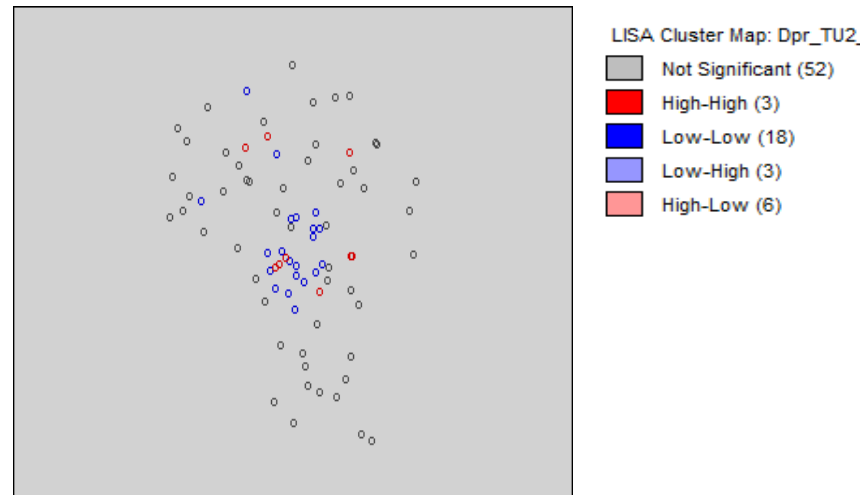
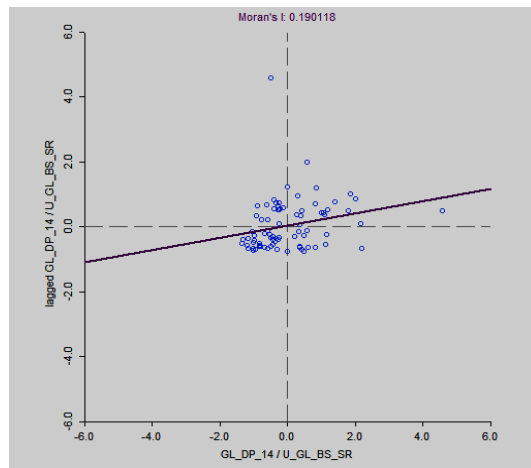
(a) **U-index** by **MILD_2014** (Moran's I = 0,12);

(b) **_interaction term MILD * HH Income** (Moran's I= 010)

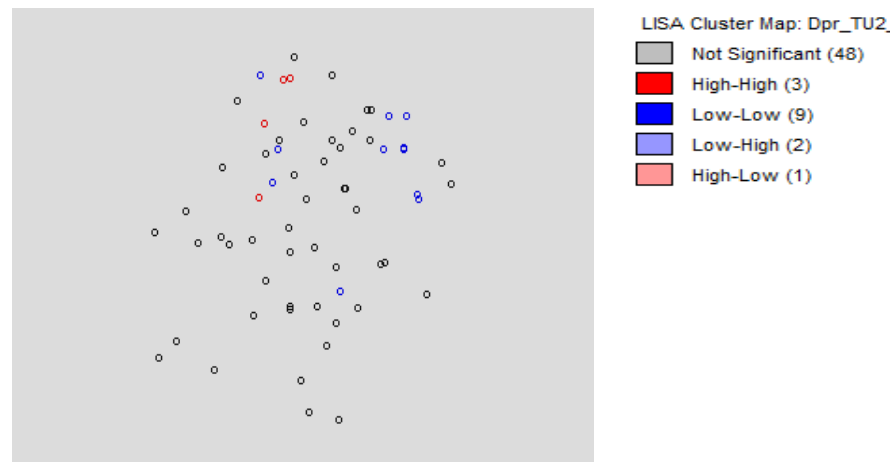
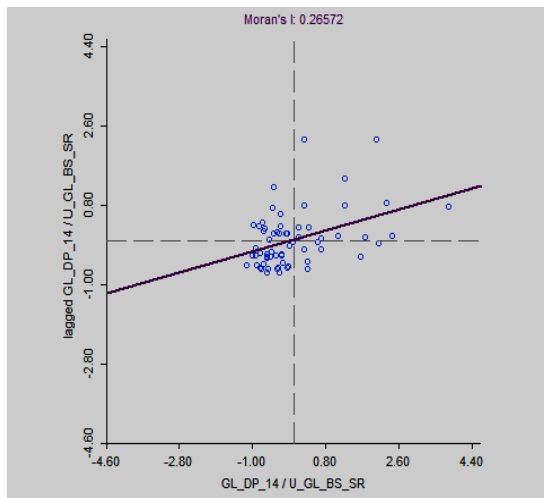


Individual wellbeing/U-index by community wellbeing/MILD-2014, in selected voivodships

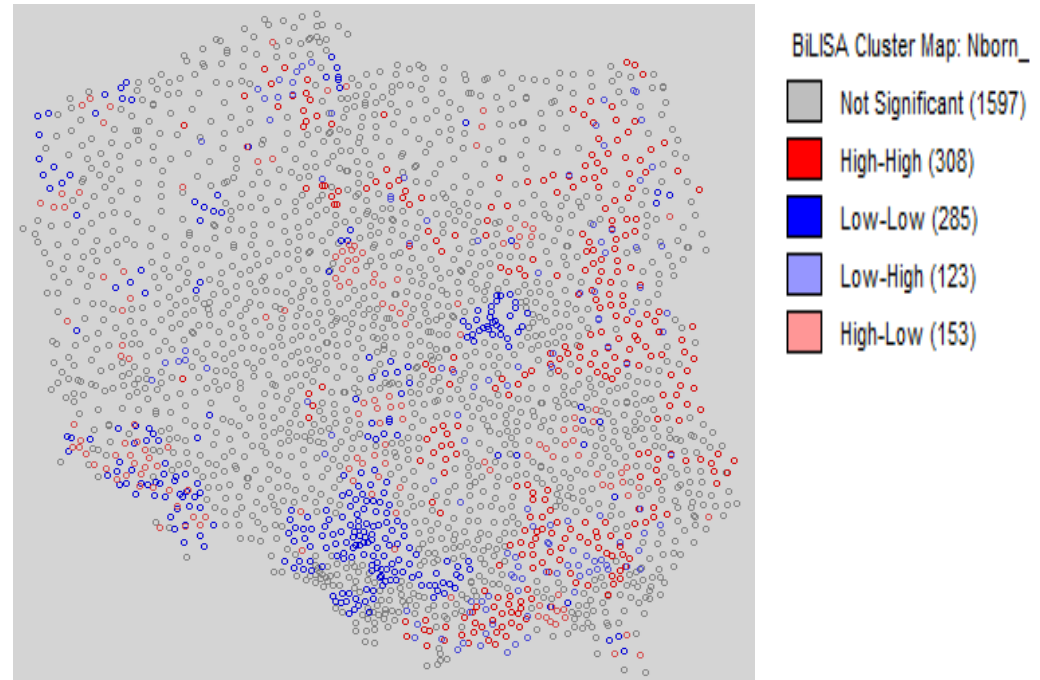
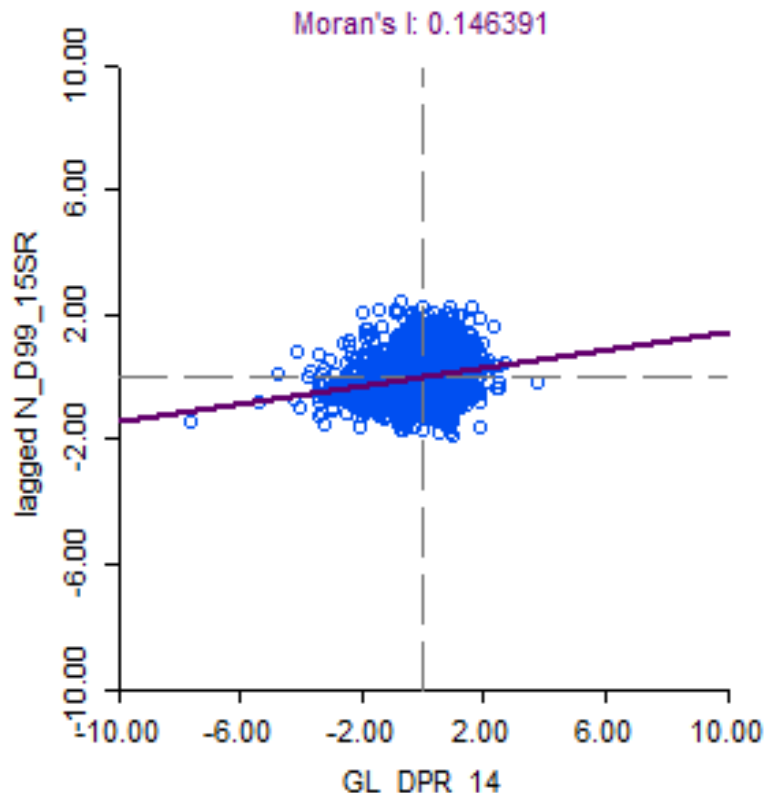
(a) Masovian voivodship (Moran-I = 0.19)



(b) Lodz voivodship (Moran-I = 0.27)

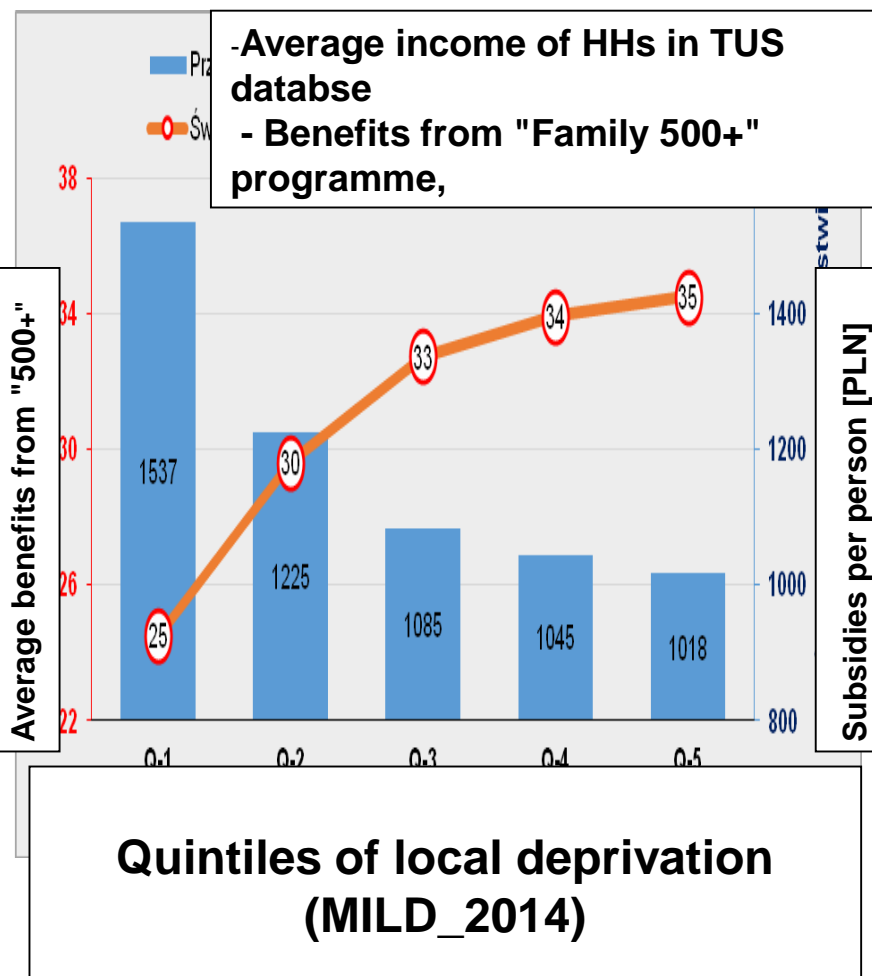
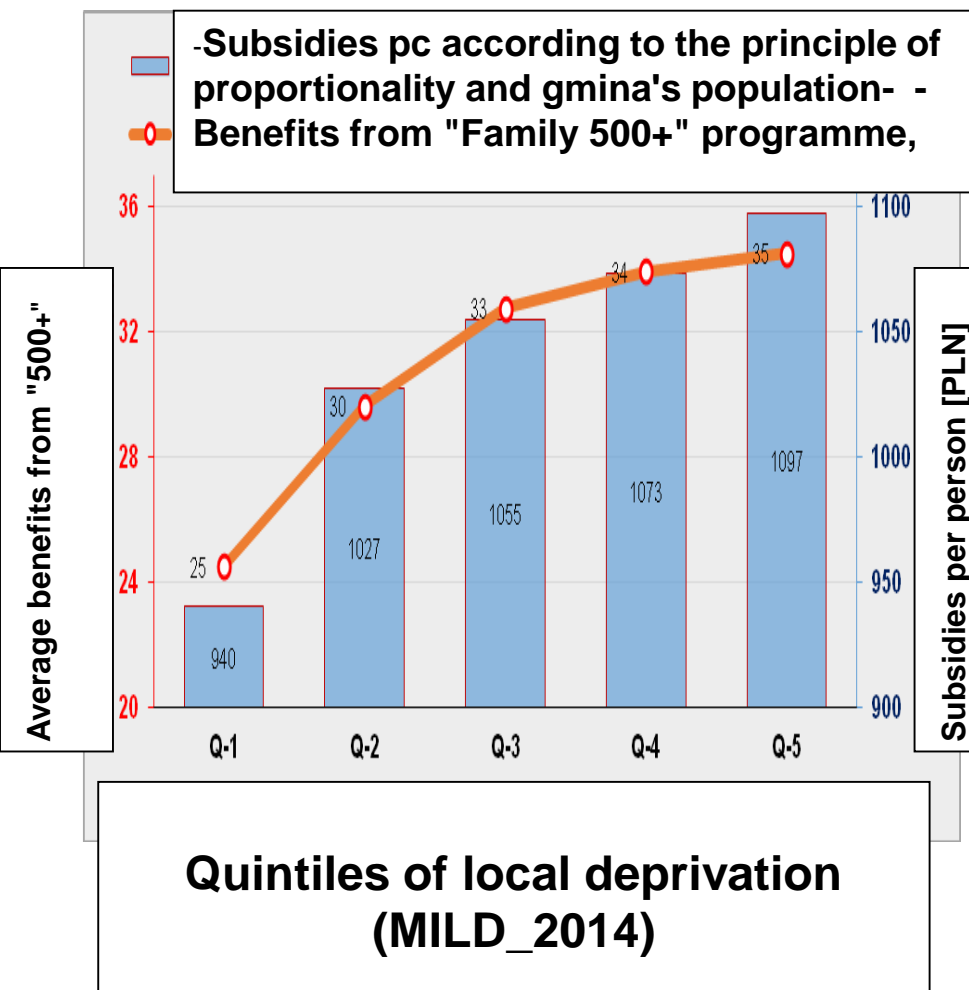


[Policy evaluation – example:] Spatial distribution of children entitled to '500+' benefits (2nd and the next in household), by the level of local deprivation. Poland 2015. Moran's $I = 0.15$



A Some tendency to clustering among gminas with a given level of average benefits obtained from the „500+” programme, and of the level of local deprivation, with prevailing pattern of ‘high-high’ in eastern and ‘low=low’ in western part of the country.

Average benefits from „Family 500+” programme (2016) along with subsidies simulated (by principle of proportionality), and average household income



Summary and conclusion

- Community wellbeing (CWB) is a multifaceted concept, the measurement of which should take into account the type of analysis and its purpose. The presented results demonstrate some potentials of the employed approach.

When operationalized in terms of multidimensional local deprivation (synthetic) index (of MILD-type) -- [differences between some time points (years) / reduction in local deprivation can be interpreted directly as CWB] -- it provides a kind of yardstick needed for evaluating effectiveness of policy intervention and validity of geographic targeting of public resources, accounting for certain priorities and principles, such as spatial fairness/justice.

- Another important use of the CWB is *contextualization* of the analysis of subjective (individual) wellbeing (SWB), along the question: *how far CWB counts for residents' wellbeing, and can it provide a basis for its prediction?*

Summary and conclusion –*contin.*

- CWB as an indicator of quality of the household direct environment (which tends to create spatial clusters – high autocorrelation of MILD) matters for the spatial variability in SWB (according to LISA/Local Index of Spatial Association).

The presented results are preliminary – they are policy relevant, but to explain relationships between CWB and SWB a more advanced analysis (involving spatial multilevel modelling) are needed.

THANK YOU FOR YOUR ATTENTION!

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Appendix 1. LOCAL DEPRIVATION – DIMENSIONS AND INDICATORS

Factor Analysis – items included in the first factor

The label of the variable

I. Ecology

1. Plants generating waste – total number [per 1000 people]
2. Emission of dust contamination and gas pollution – total [per 100 hectares of the total area of gmina]
3. Sewage not processed discharged into water or soil, total (dam³) [per 1000 people]
4. Waste generated during the year – total [thousand tons per year], [per 1000 people]
5. Sewage cleaned, discharged – total [dam³/year], [% of total sewage capacity]
6. Expenditure for public utilities and environmental protection – total [PLN], [per capita]

II. Finance

7. Income – total [PLN], [per capita]
8. Expenditure per resident – total [PLN]
9. Total budget expenditure – total asset-related expenditure [PLN], [per capita]
10. Total budget expenditure by budgetary units [PLN], [per capita]
11. Total budget expenditure for materials and services [PLN], [per capita]
12. Income from property tax [PLN], [per capita]
13. Income from asset [PLN], [per capita]
14. Total budget expenditure for salaries [PLN], [per capita]

III. Economy

15. Publicly owned enterprises – total [economic units], [per 1000 people]
16. Private sector – number of economic units, firms, in total, [per 1000 people]
17. Stores by sector of ownership, in total [per 1000 people]
18. Private sector – associations and social organizations, [% of private sector units]
19. Public sector – state and local self-government (budgetary) units, in total, [% of public units]
20. Hotel and tourist objects – accommodated [number of people], [per 1000 people]
21. Public sector – commercial units, [% of all public units]

IV. Infrastructure

22. Expenditure for transport and communication – total [PLN], [per capita]

23. Expenditure for transport and communication as asset-related expenditure, in total [PLN], [per capita]

24. Expenditure for transport and communication – asset-related investment expenditure [PLN], [per capita]

25. Expenditure for transport and communication – public roads and paid motorways [PLN], [per capita]

V. Municipal utilities

26. Dwelling amenities – flush toilet, [% of dwellings]

27. Dwelling amenities – bathroom [% of dwellings]

28. Dwelling amenities – central heating, [% of dwellings]

29. Users of the amenities as proportion of general population – sewer [%]

30. Water supply – population using the water supply network in cities [number of people], [per 1000 people]

31. Electricity in urban households – consumers of electricity at low voltage [% of dwellings]

32. Dwelling amenities – water supply [% of dwellings]

33. Dwelling amenities – gas network [% of dwellings]

34. Gas network – population using gas network [number of people], [per 1000 people]

35. Gas network – gas consumers heating homes with gas [households], [% of dwellings]

36. Water industry – water supply network [km], [per 1000 dwellings]

VI. Culture

37. Expenditure for culture and conservation of national heritage [PLN], per inhabitant

38. Expenditure for culture and conservation of national heritage – cultural houses and centers, social rooms and clubs [PLN pc],

39. Expenditure for culture and conservation of national heritage – libraries [PLN], [per capita]

40. Libraries – libraries and affiliated units [per 1000 people]

41. Libraries – library stuff [number of people], [per 1000 people]

VII. Housing

42. Dwelling units delivered, in total – living area [m²], [per 1000 people]

43. New housing buildings delivered, total – living area [m²], [per 1000 people]

44. New housing buildings delivered, total – number of buildings, [per 1000 people]

45. Dwelling units delivered, in total – dwellings [per 1000 people]

Appendix 1 –contin. LOCAL DEPRIVATION – DIMENSIONS AND INDICATORS

VIII. Social welfare

- 47. Social welfare expenditure and other needs within the social policy area – total [PLN], [per capita]
- 48. Social welfare expenditure and other needs within the social policy area – benefits to individuals [PLN], [per capita]
- 49. Social welfare expenditure and other needs within the social policy area – benefits and in kind assistance, and social security contributions [PLN], [per capita]

IX. Labour market

- 50. The rate of unemployment, as percentage of the working-age population – total [%]
- 51. Registered unemployed persons by sex – total [persons], [per 1000 people]
- 52. Employed persons by sex – total [persons], [per 1000 people]
- 53. Dependency ratio – persons in retired-age per 100 persons in the working-age
- 54. Dependency ratio – persons in non-working age per 100 persons in the working-age

X. Education

- 55. Children in kindergarten (kindergartens, kindergartens units in primary schools, teams of kindergarten upbringing and kindergarten points), [% of children aged 3-6 years]
- 56. Enrollment Ratio (primary and middle education) gross enrollment ratio – middle schools [%]
- 57. Expenditure for education and upbringing – vocational schools [PLN], [per 1 child aged 17-19]
- 58. Day-care centers – children attending during the year (including affiliated units) [persons], [% of children aged 0-3 years]
- 59. Day-care centers – children (including affiliated units), [% of children aged 0-3 years]
- 60. Expenditure for education and upbringing – secondary school [PLN], [per 1 child aged 17-19]
- 61. Expenditure for education and upbringing – kindergartens [PLN], [per 1 child aged 3-6]
- 62. Expenditure for education and upbringing – middle school [PLN], [per 1 child aged 13-16]

XI. Health

- 63. Health care institutions – medical practices in urban areas [persons], [per 1000 people]
- 64. General hospitals – bed in total, [per 1000 people]
- 65. Health-related expenditure – total [PLN], [per capita]