

THE TOWNSEND DEPRIVATION INDEX VARIATION AS INDICATOR OF PERIURBAN AREAS DEVELOPMENT

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Abstract

In view to evaluate the dynamic interaction between the natural and human components based on the synergy of ecological and socio-economic factors in the rapidly urbanizing landscapes – DYNAHU we intend to evaluate the Townsend Deprivation Scores (TDS) and Townsend Index (TI) at NUTS3 level using mainly the population census data from 1992 compared with population census data 2002, but only for sample of 10% of total. Our research question is: Could be the Townsend Deprivation Index variation an indicator of periurban areas defined in the line with Donzelot (2004) and Charmes (2011) development, at NUTS3 level, considering that the Negative values of TI indicate less deprived areas and positive values TI indicate more deprived areas? The extreme variation in deprivation measurement indicates an changing in the regime of land use in both ways increasing wealth or increasing poverty (according with Townsend et al, 1988 and Testi, Ivaldi et al., 2004).

Keywords: deprivation at county level, periurban areas.

JEL Classification: R14, I32, R11.

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Motto: "Nothing is poison and everything is poison; the difference is in metering." Paracelsus

1. Introduction

The periurban areas could be referred in DYNAHU project as the locations with increased dynamic interaction between the natural and human components in rapidly urbanizing landscapes, in a synergy of ecological and socio-economic factors. This approach is in line with the definitions of the periurban area as the spatial zone with high degree of "**social polarisation**" or "**areas with a high level of socio-spatial segregation**" formulated by Donzelot (2004) as the "lack of urbanity and with an emphasis on socio-spatial segregation elements" (2004) and recently by Charmes (2011) as "clubbisation areas".

On this background is mainly described the social and spatial interactions, calling some other concepts to explain it: standards of living, social polarisation, poverty, social exclusion, etc.

When we talk about periurban areas we talk about social polarisation. **Social polarisation** usually is accompanied by **poverty and social exclusion**, major factor that explains differences in **standards of living** by location:

*"Social polarisation - it is a structural process creating reverberations the length and breadth of global, national and **local** society. And while there are other concepts and themes that have to be employed to describe and analyse world social problems, social polarisation is indispensable. Poverty and social exclusion are inevitable by-products."* (Townsend, Gordon, et al., 2002)

In view to characterise the periurban area is essential the "new" Townsend perspective regarding poverty:

"Poverty is not an absolute state. It is relative deprivation. Society itself is continuously changing and thrusting new obligations on its members. They, in turn, develop new needs. They are rich or poor according to their share of the resources that are available to all. This is true as much of nutritional as monetary or even educational resources." (Townsend, P. 1962, p.225)

If we consider poverty as a dynamic phenomenon of sharing and access the resources then in any location where there is registered an excessive agglomeration is increasing the risk of poverty. The transition of location from the high standard of living in a location with a low standard of living could realised in short term not only on long term as a consequence of

resources shortage, especially when the rate of growth and the rate of consumption exceed the rate of reproducing the resources:

“Our general theory, then, should be that individuals and families whose resources, over time, fall seriously short of the resources commanded by the average individual or family in the community in which they live, whether that community is a local, national or international one, are in poverty.” (Townsend, P. 1962 p.225)

Differences in living standards are the reflexes of poverty, deprivation, disadvantaged, underprivileged – terms that express inequalities in society. Next to objective and subjective measurement approach of **living standards** is relatively recently developed the **deprivation approach** by Townsend in 1979 defined as

“Deprivation may be defined as a state of observable and demonstrable disadvantage relative to the local community or wider society or nation to which an individual, family or group belongs.” (Townsend, 1987:125) *cited from (Midgely, Ashton et al. 2005).*

Other definition of deprivation commonly used is that of “enforced lack of socially perceived necessities” (Saunders, Wong, 2008). The rationale of deprivation calculation in a spatial distribution is relevant for policy makers especially in resources allocation, based on census data:

“Census data can be used to describe characteristics of an area. The most commonly used indicator for an area is perhaps the **deprivation indicator**, which has been used by governments allocating resources” (Feng, Dibben, 2013),

On this background we intend to evaluate the Townsend deprivation scores and Townsend Index (TI) at NUTS3 level using mainly the population census data from 1992 compared with population census data 2002. Our research question is: could be the Townsend Deprivation Index variation could be an indication of periurban locations development, described by an excessive dynamics described by the extreme Negative values of TI which indicate a less deprived areas increasing and extreme positive values TI which indicates more deprived areas increasing. The extreme variation in deprivation measurement indicates an changing in the regime of land use in both ways increasing wealth or increasing poverty.

2. The periurban area concept induced by the socio-economic (including institutional) and ecological phenomena

In literature there is a large typology of periurban areas definitions. Mainly the natural periurban areas are the action results of two major factors: the urban pressure (large human agglomeration) and the natural characteristics of the location.

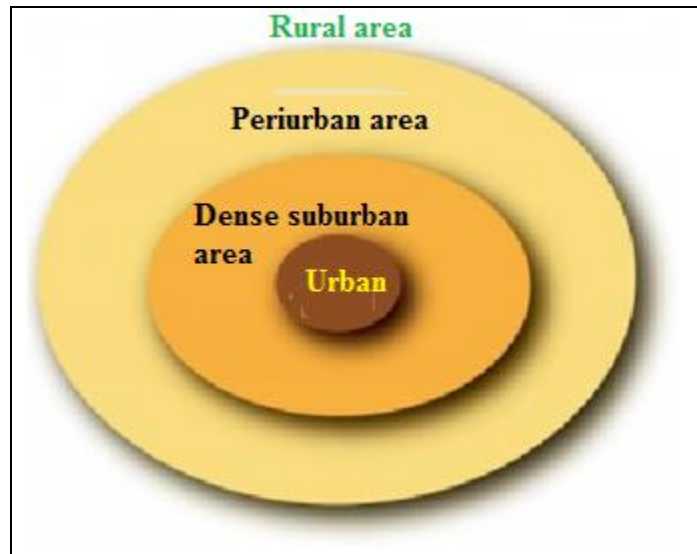


Figure 1. The spatial distribution of the main categories of interaction between human activity and the natural environment (Degat, 2012)

Figure 1 above places periurban area as a territory surrounding an urban pole with the important role of concentrator of resources at national or regional level, which implies subordination, coordination and influence relations generation. The result of a rationale and efficient management and functioning of these administrative territories allow the equilibrium of standard of living for all inhabitants, reflecting an sustainable development.

“The dynamic nature of the fringe is a challenge for planners. The ideal meeting of the rural and the urban shall mean the preservation of the natural rural serenity with that of the extension of all basic urban amenities. There shall be enough residential space but not at the cost of the rich fertile agricultural lands of the villages. The fringes must not be treated as dumping grounds of all urban wastes to make the lives of the residents miserable. The rural greens shall not be sacrificed for creating space for any displaced industry considered harmful for the city life. **The residents of the peri urban interface shall be provided with all the necessary urban amenities and may well be treated as an inseparable part of the urban system.**” (Sarkar, Banyopadhyay, 2013)

Among the huge literature of urbanism, geography, sociology, labour market, mobility etc, we present a selection o periurban area definitions mainly connected to the space even if the term “peri-urban has been used to define ‘a place, concept or process “(Narain, Nischal 2007 cited by Marshall, Waldman et al. 2009)

Its structural and functional content according to Pryor (1968) the urban rural fringe could be defined by its structural content using following criteria: location, administration, population density, zoning regulation and dwelling age. The same author define the periurban

area by its functional content using following criteria: land use, employment, population density, utility services, social orientation and transition dynamism (Pryor, 1968, cited by Sarkar, Banyopadhyay, 2013)

The periurban area was signalled as concept in relation to **the space of residence and with working space** in Anglo Saxon literature in 1940, used to distinguish between area of residence for commuters and working space defined as the intersection of urban areas to rural areas. The interest for the periurban research as a phenomenon was revealed in France 1960, first mentioned by Jacqueline Beaujeu-Garnier.

Also in spatial terms, **in relation to proximity or distance of a location to a city**, Brunet, Ferras et al.(1992) defines suburban area “everything that surrounds the city and, in fact, part of the city through the activities and lifestyle of the inhabitants”. Periurban area is fundamentally integrated in urban contexts, but is delimited as “periurban areas occupy ‘unique space’, in that they are simultaneously sustained and imperilled by the dynamics of the urban economy” (Friedberg 2001: 353, cited by Marshall, Waldman et al. 2009).

The location is the space where the mix social, economic, environmental and institutional characteristics is presented by Allen et al. (2006), they define periurban area as the location “where rural and urban features co-exist, in environmental, socio-economic and institutional terms”. Choy, Sutherland, et al., 2007 illustrated that a wide range of drivers from global, national, regional and local scales may occurring at multiple scales. From the sustainable perspective there is identified also the risk of ecological disaster in the periurban areas as a consequence of over exploitation of resources.

Periurban area is referred as a **land-use conflict area** by Choy, Sutherland, et al (2007), as a result of the „land use activities exhibit a high degree of heterogeneity, continual change and conflicting values”. The same idea of land use conflicts in periurban area is shared also by Von der Dunk, A., Grêt-Regamey et al. (2011), identifying 6 types of conflicts: „noise pollution, visual blight, health hazards, nature conservation, preservation of the past and changes to the neighbourhood”.

Reported to **change and time**, Rohilla (2005 cited by Marshall, Waldman et al. 2009) “stresses the rapid trajectory of change in peri-urban areas as the critical feature”.

- **Periurban as areas with a high level of socio-spatial segregation**

Donzelot (2004), categorize „The three-speed city: relegation, suburbanization, gentrification”.

“While the historical dynamics of the city favoured an aggregation of diverse populations in the same space, we are now witnessing a break corresponding to a triple movement of separation: the gentrification prestigious city centres, the departure of the middle class to a suburban cheaper and protected, the relegation of social housing cities.” (Donzelot 2004)

The clubbisation present the relegation and gentrification from the perspective of shared resources by Charmes (2011), see Table 1:

Tabel 1. Clubbisation – or from shared resources to club resources

	Users to be determined according to the resource (economic sphere)	A given community (political sphere)
Shared use is problematic (high congestion)	Private resources (e.g. a dwelling)	Shared resources (e.g. municipal woodland in a rural village)
Shared use poses few problems (low congestion)	Club resources (e.g. a landscaped garden in a gated condominium complex)	Public resources (e.g. the air quality of a metropolitan area)

Source of the table: cited from Charmes, E. & translated by Waive, O., (2011) “Beyond dreams of village life: residential clubs and clubbisation”, *Metropolitiques*, 26 October 2011. URL: <http://www.metropolitiques.eu/Beyonddreams-of-village-life.html>. Table drawn up on the basis of a critical reading of Ostrom, Elinor, Gardner, Roy & Walker, James. 1993. *Rules, games, and common-pool resources*, Ann Arbor: University of Michigan Press. See also Charmes, Éric, 2011. *Op. cit.*, chap. 5.

Homeownership relations and lifestyles in modest house families living in peripheral areas are presented as the "captives" of periurban areas by Rouge (2005) and Brevard (2005) indicates that the peripheral periurban areas are the place for new social and spatial practices. Other dimension of social polarisation in periurban areas is the extremist vote signalled by Giraud, (2010) as an indicator of social stigmatisation.

3. Research Methodology

The Townsend deprivation index (TDS) represents a synthesis tool with the potential for international comparability, which provides useful results for decision makers. The interest in this type of index is supported by the hypothesis that major differences in economic performance and welfare in spatial localization are explained on the assumption that there is a high degree of homogeneity in the population included in the defined area.

Our Calculation Methodology is based on the article of Testi, Ivaldi et al., 2004.

The Townsend deprivation index was developed in 1988 by the author who bears his name in order to analyze measures for the implementation of health policy in the northern regions of the UK (Townsend *et al*, 1988, cited from geog.soton.ac.uk).

“**Material deprivation** entails the lack of goods, services, resources, amenities and physical environment which are customary, or at least widely approved in the society under consideration. **Social deprivation**, on the other hand, is nonparticipation in the roles, relationship, customs, functions, rights and responsibilities implied by a member of a society and its sub-groups. Such deprivation may be attributed to the affects of racism, sexism and ageism...” (Townsend, Phillipmore, et al., 1988:10).

This index is calculated based on the 4 “direct indicators of deprivation:

$X_1 = \textit{unemployment}$ expressed as unemployment rate – reflects the lack of material resources and of economic confidence;

$X_2 = \textit{overcrowded housing}$, expressed as percentage of households with more than 1 person/room – reflects the material conditions of life;

$X_3 = \textit{car ownership}$ expressed as percentage of households with no car - proxy for welfare

$X_4 = \textit{housing tenure}$ is the percentage of households not owner-occupied – proxy for current income

The *Townsend Index* is an additive construction of the percentages scores standardized of each of the 4 direct indicators of deprivation listed before noted as X_1 to X_4 , is calculated in 2 steps:

Step 1. In view to exclude the risk of skewness for the unemployed persons and for overcrowded housing is normalized thorough applying the log transformation:

$$T_1 = \log (X_1 + 1) ; T_2 = \log (X_2 + 1) ; T_3 = X_3 ; T_4 = X_4 \quad [1]$$

Step 2. Calculating standardized z scores for the 4 direct indicators (X_1 to X_4):

$$z_1 = \frac{t_1 - \mu_{T_1}}{S_{T_1}} ; z_2 = \frac{t_2 - \mu_{T_2}}{S_{T_2}} ; z_3 = \frac{t_3 - \mu_{T_3}}{S_{T_3}} ; \textit{and } z_4 = \frac{t_4 - \mu_{T_4}}{S_{T_4}} ; [2]$$

where:

t - value of the standardized deprivation indicator

μ - mean

S_{T_i} – standard deviation

$$\textit{Townsend Index} = \sum_{i=1}^4 z_i \quad [3]$$

The main result of this measurement is “the **form of deprivation**, which has to be measure, and not status of individuals who suffers for it”. (Townsend, Phillipmore, et al., 1988:10). The level and the sign of TI index are interpreted as following:

“Positive values of the TI index will indicate areas with high material deprivation, whereas those with negative values will indicate relative affluence. A score of 0 represents an area with overall mean values.” (geog.soton.ac.uk)

4. Data sources and indicators

Data sources and indicators used:

In calculation of the X1 we used the following indicator:

- *TEMPO INS: Ind_SE_9a_Rata_somajului_inregistrat SOM103A - Unemployment rates by gender, macro, development regions and counties*

In the calculation of X2 and X4, we used the following indicators:

- Census 1992: code INS/ 15. housing ownership, by location CURRENT BUILDING AND LIVING Building Type
- Census 2002: code INS/10. housing ownership, by location CURRENT BUILDING AND LIVING BUILDING TYPE counties,
- X₂ the percentage of households with the number of persons per living room greater than 1.2 (we used aggregate data) Total number of households / county;
- X₄ the percentage of households that are not personal property in total households / county;

În calculul X₃ am utilizat următorii indicatori:

- Stable Population Census 1992 INS code: P21: Professional status, a sample of 10% of the data was used for this query. Applications can be processed by INS saved 100% of the data fee depending on demand content.
- Stable Population Census 2002 INS code: P35: Professional status A sample of 10% of the data was used for this query. Applications can be processed by INS saved 100% of the data fee depending on demand content.
- For car ownership we used:
 - back projection based on the 2000-2012 data series where 2006 data are forecasted
 - for the years 2000-2005: Tempo_COV101S_14_3_2014: Households by endowment with durable goods and by occupational status of the head of household
 - for the years 2007-2012: Tempo_CAV102J_14_3_2014: The percentage of households by the type of endowment goods, on occupational status of the household head, in total number of households from each category

Limitations of the method and data used: we use only census data at the county level and only aggregate data made available online by the INS at NUTS3 level. The county has political relevance in terms of resource allocation for multiple policies. These data are indicative only a sample of 10% of the data was used for this query. Applications can be processed by INS saved 100% of the data fee depending on the request. This article is a step in the application of this methodology for calculating the level of smaller territorial areas, more homogeneous, i.e. at the level of rural, urban and suburban at LaAU2 level, equivalent NUTS5 level, when the data will be accessible.

5. Results

In Figure 1 is shown graphically a low correlation indicators X_i , $i = 1$ to 4 in the form of standardized Z_1 to Z_4 , 2002, which shows the independence of these factors.

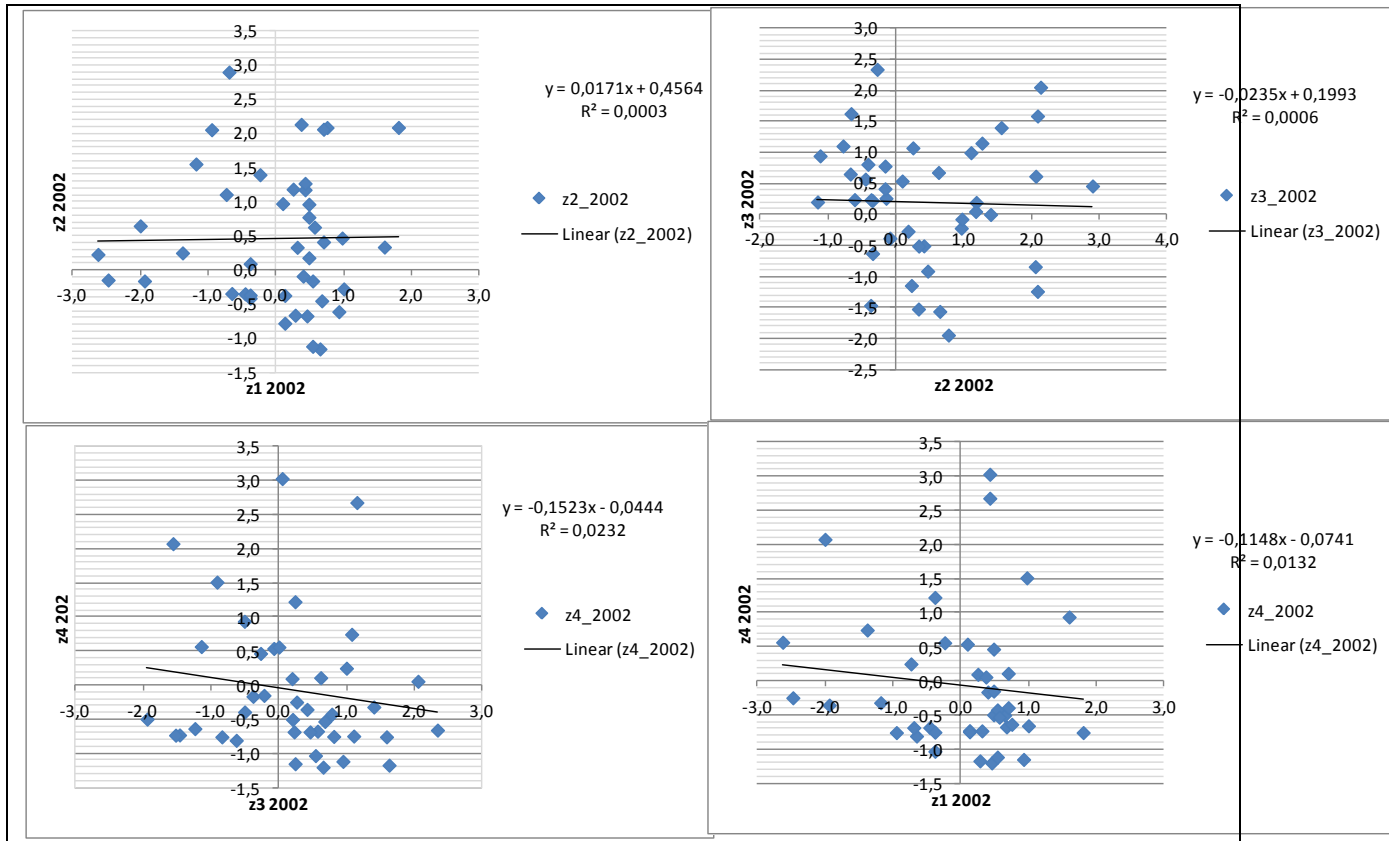


Figure 1. Correlation Scatter Points for indicators X_i , $i=1$ to 4 standardized as Z_1 to Z_4 2002.

Source: realized by authors

In Table 1 presents The standardized values Z_1 to Z_4 associated with X_1 to X_4 direct indicators of deprivation and Townsend Index TI calculated in 1992 and 2002 by county Hierarchy of Townsend Index by county.

Table 1. The standardized values Z_1 to Z_4 associated with X_1 to X_4 direct indicators of deprivation and Townsend Index TI calculated in 1992 and 2002 by county

Hierarchy of Townsend Index by county

			z1_1992	z2_1992	z3_1992	z4_1992	TI 1992	z1_2002	z2_2002	z3_2002	z4_2002	TI 2002
M3	MB	Municipiul Bucuresti	-1,4	0,4	0,4	1,9	1,3	-2,6	0,2	-1,1	0,6	-3,0
M1	NV	Bihor	-0,3	1,6	0,7	-1,4	0,6	-2,5	-0,1	0,3	-0,2	-2,6
M3	SM	Dambovită	-0,9	0,0	0,7	-1,1	-1,3	0,1	-0,4	-1,5	-0,7	-2,4
M3	SM	Arges	-0,6	0,6	-0,3	-0,1	-0,4	-0,7	-0,3	-0,6	-0,8	-2,4
M1	NV	Satu Mare	0,2	1,6	0,2	-0,8	1,1	-1,9	-0,2	0,4	-0,4	-2,0
M2	NE	Bacau	0,4	1,6	-1,3	0,0	0,7	0,3	0,3	-1,5	-0,7	-1,6
M4	SV	Dolj	0,8	0,4	-0,6	-0,7	-0,1	-0,5	-0,3	0,2	-0,7	-1,3
M1	NV	Bistrita-Nasaud	1,9	1,6	-1,2	-0,7	1,6	0,5	0,8	-1,9	-0,5	-1,2
M4	Ma	Timis	-1,5	-0,1	-0,3	0,3	-1,7	-2,0	0,6	-1,6	2,1	-0,8
M3	SM	Calarasi	-0,4	0,1	2,1	-0,8	0,9	0,6	-1,2	0,2	-0,5	-0,8
M1	NV	Salaj	0,7	0,3	0,3	-0,6	0,7	-0,4	0,1	0,5	-1,0	-0,8
M4	SV	Olt	0,2	0,0	-0,3	-1,2	-1,3	0,5	-0,7	0,7	-1,2	-0,8
M3	SM	Teleorman	-0,5	-0,3	0,3	-1,3	-1,7	0,5	-1,1	0,9	-1,1	-0,8
M3	SM	Giurgiu	0,1	-0,3	0,8	-1,6	-1,0	-0,4	-0,4	0,8	-0,8	-0,7
M4	SV	Valcea	0,0	-0,7	-2,3	-1,1	-4,1	0,9	-0,6	0,2	-1,2	-0,6
M2	SE	Vrancea	0,8	0,2	-2,9	-0,7	-2,6	-1,0	2,1	-0,8	-0,8	-0,5
M4	SV	Mehedinti	-0,4	0,3	-0,6	-0,1	-0,8	0,1	-0,8	1,1	-0,7	-0,3
M2	NE	Iasi	0,8	1,6	-0,2	0,7	2,9	0,4	-0,1	-0,4	-0,2	-0,2
M2	SE	Buzau	1,3	0,1	0,7	-1,2	0,9	0,3	-0,7	1,6	-1,2	0,1
M2	NE	Neamt	1,2	1,6	-0,5	-0,9	1,4	0,7	-0,5	0,6	-0,7	0,1
M1	C	Alba	-1,0	1,6	-0,2	-0,5	-0,1	0,7	0,4	-0,5	-0,4	0,2
M4	S	Arad	-0,9	-0,3	1,1	-0,4	-0,5	-1,4	0,3	1,1	0,7	0,7
M1	C	Sibiu	-0,1	0,1	0,7	0,7	1,4	-0,4	-0,4	0,2	1,2	0,7
M3	SM	Prahova	-1,1	-0,3	0,4	-0,5	-1,5	0,5	-0,2	0,8	-0,4	0,7
M2	SE	Braila	1,2	0,7	-0,4	1,0	2,5	0,5	0,2	-0,3	0,5	0,9
M2	NE	Botosani	0,9	1,6	-1,3	-0,7	0,4	0,8	2,1	-1,2	-0,6	1,0
M1	NV	Cluj	-0,1	1,2	0,1	0,4	1,7	0,5	1,0	-0,2	-0,2	1,1
M2	NE	Suceava	0,7	1,6	-0,6	-1,0	0,7	0,6	0,6	0,7	-0,5	1,3
M3	II	Ifov	-1,4	-3,7	0,8	1,9	-2,5	-1,2	1,6	1,4	-0,3	1,5
M2	SE	Constanta	-0,7	1,0	1,0	0,8	2,0	0,1	1,0	-0,1	0,5	1,5
M1	C	Mures	-0,4	1,6	0,9	-0,8	1,4	-0,7	1,1	1,0	0,2	1,6
M1	C	Harghita	0,2	1,6	0,7	-0,3	2,2	-0,2	1,4	0,0	0,6	1,7
M1	C	Covasna	-0,1	1,6	0,8	0,0	2,2	0,3	1,2	0,2	0,1	1,7
M1	NV	Maramures	-0,4	1,4	-0,3	-0,6	0,2	-0,7	2,9	0,5	-0,7	2,0
M1	C	Brasov	-1,3	1,2	0,5	1,4	1,9	1,0	0,5	-0,9	1,5	2,0
M2	SE	Galati	0,4	0,9	0,4	0,4	2,1	1,6	0,3	-0,5	0,9	2,4
M3	SM	Ialomita	0,1	0,2	1,6	-1,1	0,7	1,0	-0,3	2,3	-0,7	2,4
M4	SV	Gorj	-2,8	0,3	-1,3	-0,1	-3,8	0,7	2,1	0,6	0,1	3,5
M2	SE	Tulcea	1,8	0,4	1,0	-0,8	2,5	0,4	2,1	2,1	0,1	4,6
M4	L	Hunedoara	-0,4	0,7	0,3	2,9	3,5	0,4	1,2	0,0	3,0	4,7
M2	NE	Vaslui	1,7	1,6	-1,3	-0,6	1,4	1,8	2,1	1,6	-0,8	4,7
M4	D	Caras-Severin	0,9	0,2	0,4	1,0	2,6	0,4	1,3	1,1	2,7	5,5

Source: realized by authors

Notations: Z_1 = the standardised score for unemployment rate; Z_2 = the standardised score for the percentage of households with more than 1 person/room ; Z_3 = the standardised score for car ownership expressed as percentage of households with no car - proxy for welfare Z_4 = the standardised score for housing tenure is the percentage of households not owner-occupied – proxy for current income.

We conclude that:

- the counties with increasing periurban areas with gentrification polarization, respectively, the areas the least deprived areas in 2002 (compared to 1992) are Bucharest, Bihar, Dâmbovița, Argeș and Satu Mare with Townsend Index values above -2;
- the counties with increasing periurban areas with negative polarisation / relegation, respectively, the areas the highest deprived areas in 2002 (compared to 1992) are Caraș Severin, Vaslui, and Tulcea counties. In these counties is visible the process of deepening polarization, illustrated by the increasing deprivation Townsend Index values above the threshold of 4.

TI 2002 increased nationally by 0.38 to TI 1992 which once again confirms the increasing regional disparities in terms of access to goods, services, resources, facilities and physical environment in reference to normal values. (See Figure 2)

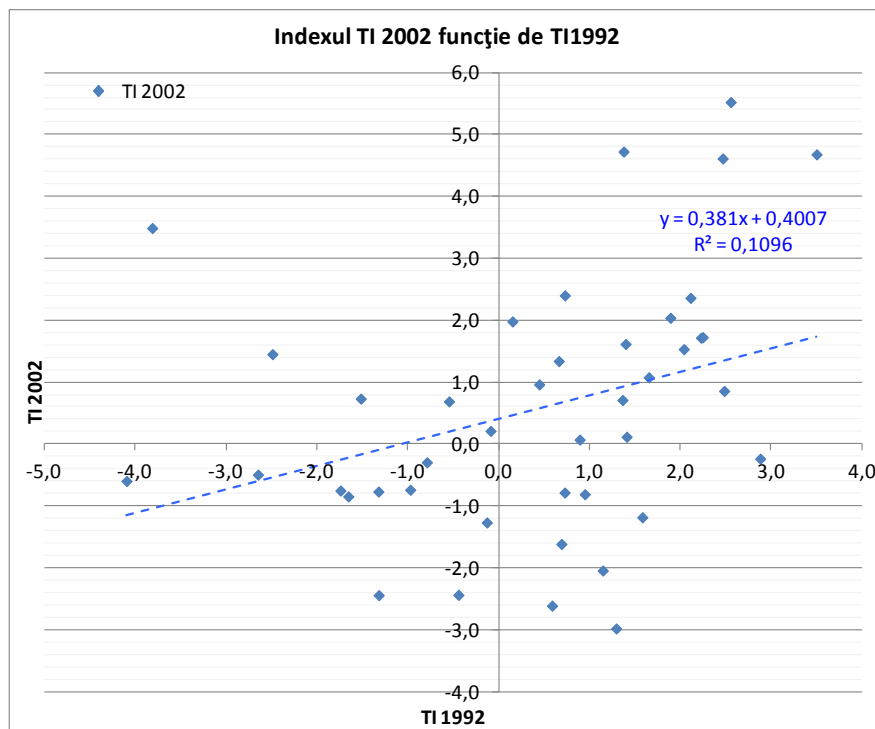


Figure 2. The value for TI2002- Townsend Index in 2002 in function by TI1992 Townsend Index in 1992.

Source: realized by authors

Townsend deprivation scores (Z_i) by county in 2002 in function by 1992 values are presented in Figure 3. There are visible major differences at county level for X_4 share of households who do not have ownership of the dwelling (**housing tenure**) - proxy for current income, with an increase of 0.72. Differentiation current income at the county level is confirmed as significant factor in the relatively high coefficient of determination of 52% (proportion of variance explained by the model). Polarization welfare (X_3 share of households without cars - **car ownership**) increased by 0.36 followed by lack of material resources and economic confidence. Also X_1 unemployment rate as a measure for unemployment, **proxy for economic confidence** is increasing by 0.32 but both statistically insignificant as the **overcrowded housing** X_2 that reflects the material conditions of life. X_2 has the lowest influence in the IT growth in 2002 compared to 1992 with only 0.18.

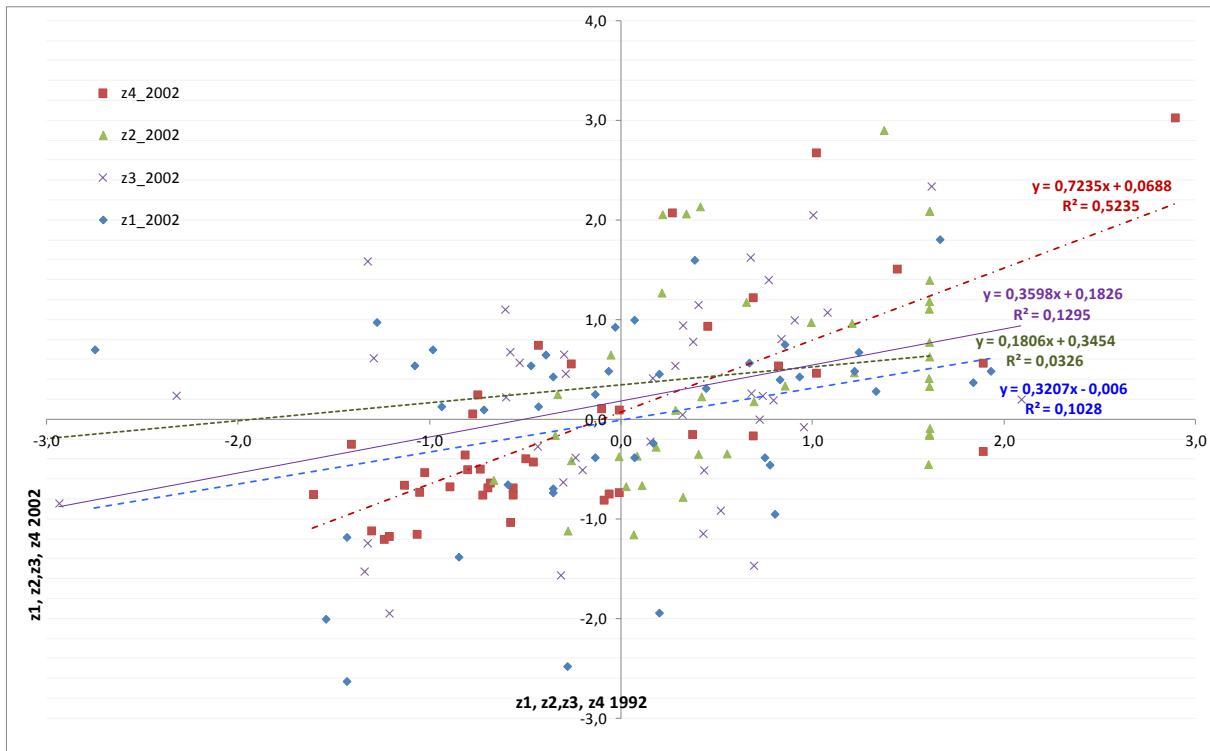


Figure 3. Townsend deprivation scores by county in 2002 in function by 1992 values.

Source: realized by authors

Table 2. The standardized values Z1 to Z4 associated with X1 to X4 direct indicators of deprivation calculated in 1992 and 2002

Hierarchy of Townsend deprivation scores by county

	z1 1992	z1_ 2002		z2_ 1992	z2_ 2002		z3_ 1992	z3_ 2002		z4_ 1992	z4_ 2002
Municipiul Bucuresti	-1,4	-2,6	Calarasi	0,1	-1,2	Bistrita-Nasaud	-1,2	-1,9	Olt	-1,2	-1,2
Bihor	-0,3	-2,5	Teleorman	-0,3	-1,1	Timis	-0,3	-1,6	Buzau	-1,2	-1,2
Timis	-1,5	-2,0	Mehedinti	0,3	-0,8	Bacau	-1,3	-1,5	Valcea	-1,1	-1,2
Satu Mare	0,2	-1,9	Olt	0,0	-0,7	Dambovita	0,7	-1,5	Teleorman	-1,3	-1,1
Arad	-0,9	-1,4	Buzau	0,1	-0,7	Botosani	-1,3	-1,2	Salaj	-0,6	-1,0
Ilfov	-1,4	-1,2	Valcea	-0,7	-0,6	Municipiul Bucuresti	0,4	-1,1	Arges	-0,1	-0,8
Vrancea	0,8	-1,0	Neamt	1,6	-0,5	Brasov	0,5	-0,9	Vrancea	-0,7	-0,8
Mures	-0,4	-0,7	Giurgiu	-0,3	-0,4	Vrancea	-2,9	-0,8	Vaslui	-0,6	-0,8
Maramures	-0,4	-0,7	Dambovita	0,0	-0,4	Arges	-0,3	-0,6	Giurgiu	-1,6	-0,8
Arges	-0,6	-0,7	Sibiu	0,1	-0,4	Galati	0,4	-0,5	Mehedinti	-0,1	-0,7
Dolj	0,8	-0,5	Dolj	0,4	-0,3	Alba	-0,2	-0,5	Bacau	0,0	-0,7
Salaj	0,7	-0,4	Arges	0,6	-0,3	Iasi	-0,2	-0,4	Dambovita	-1,1	-0,7
Giurgiu	0,1	-0,4	Ialomita	0,2	-0,3	Braila	-0,4	-0,3	Maramures	-0,6	-0,7
Sibiu	-0,1	-0,4	Satu Mare	1,6	-0,2	Cluj	0,1	-0,2	Dolj	-0,7	-0,7
Harghita	0,2	-0,2	Prahova	-0,3	-0,2	Constanta	1,0	-0,1	Neamt	-0,9	-0,7
Constanta	-0,7	0,1	Bihor	1,6	-0,1	Harghita	0,7	0,0	Ialomita	-1,1	-0,7
Dambovita	-0,9	0,1	Iasi	1,6	-0,1	Hunedoara	0,3	0,0	Botosani	-0,7	-0,6
Mehedinti	-0,4	0,1	Salaj	0,3	0,1	Covasna	0,8	0,2	Suceava	-1,0	-0,5
Covasna	-0,1	0,3	Braila	0,7	0,2	Calarasi	2,1	0,2	Calarasi	-0,8	-0,5
Buzau	1,3	0,3	Municipiul Bucuresti	0,4	0,2	Dolj	-0,6	0,2	Bistrita-Nasaud	-0,7	-0,5
Bacau	0,4	0,3	Arad	-0,3	0,3	Sibiu	0,7	0,2	Prahova	-0,5	-0,4
Tulcea	1,8	0,4	Bacau	1,6	0,3	Valcea	-2,3	0,2	Alba	-0,5	-0,4
Iasi	0,8	0,4	Galati	0,9	0,3	Bihor	0,7	0,3	Satu Mare	-0,8	-0,4
Hunedoara	-0,4	0,4	Alba	1,6	0,4	Satu Mare	0,2	0,4	Ilfov	1,9	-0,3
Caras-Severin	0,9	0,4	Brasov	1,2	0,5	Maramures	-0,3	0,5	Bihor	-1,4	-0,2
Olt	0,2	0,5	Suceava	1,6	0,6	Salaj	0,3	0,5	Iasi	0,7	-0,2
Bistrita-Nasaud	1,9	0,5	Timis	-0,1	0,6	Neamt	-0,5	0,6	Cluj	0,4	-0,2
Braila	1,2	0,5	Bistrita-Nasaud	1,6	0,8	Gorj	-1,3	0,6	Tulcea	-0,8	0,1
Cluj	-0,1	0,5	Cluj	1,2	1,0	Olt	-0,3	0,7	Covasna	0,0	0,1
Teleorman	-0,5	0,5	Constanta	1,0	1,0	Suceava	-0,6	0,7	Gorj	-0,1	0,1
Prahova	-1,1	0,5	Mures	1,6	1,1	Prahova	0,4	0,8	Mures	-0,8	0,2
Suceava	0,7	0,6	Hunedoara	0,7	1,2	Giurgiu	0,8	0,8	Braila	1,0	0,5
Calarasi	-0,4	0,6	Covasna	1,6	1,2	Teleorman	0,3	0,9	Constanta	0,8	0,5
Neamt	1,2	0,7	Caras-Severin	0,2	1,3	Mures	0,9	1,0	Harghita	-0,3	0,6
Alba	-1,0	0,7	Harghita	1,6	1,4	Arad	1,1	1,1	Municipiul Bucuresti	1,9	0,6
Gorj	-2,8	0,7	Ilfov	-3,7	1,6	Mehedinti	-0,6	1,1	Arad	-0,4	0,7
Botosani	0,9	0,8	Vrancea	0,2	2,1	Caras-Severin	0,4	1,1	Galati	0,4	0,9
Valcea	0,0	0,9	Gorj	0,3	2,1	Ilfov	0,8	1,4	Sibiu	0,7	1,2
Brasov	-1,3	1,0	Botosani	1,6	2,1	Vaslui	-1,3	1,6	Brasov	1,4	1,5
Ialomita	0,1	1,0	Vaslui	1,6	2,1	Buzau	0,7	1,6	Timis	0,3	2,1
Galati	0,4	1,6	Tulcea	0,4	2,1	Tulcea	1,0	2,1	Caras-Severin	1,0	2,7
Vaslui	1,7	1,8	Maramures	1,4	2,9	Ialomita	1,6	2,3	Hunedoara	2,9	3,0

Source: realized by authors

6. Final Remarks

The decrease in current income and wealth polarization achieved during the decade 1992-2002 may reflect the existing of interactions between urban areas, rural and peri-urban areas at NUTS3 level, but without identifying the specific location – at least at this stage of study (based on partial data). Natural consequences of limiting the activation process and economic and social integrity indicates increased risk for striking manifestation of the lack of material resources and economic confidence and a long-term perspective, factors that could lead to degradation of the material conditions of life, respectively increasing material deprivation and increasing the poverty risk.

Peri-urban areas are locations with important variation of socio-economic characteristics that reflects the dynamics of complex factors manifested by rich and poor areas finally.

The proposed methodology can be applied again if we get access to micro data and we will apply differing types of areas (urban, rural and suburban). This is a synthesis instrument that provides useful output for the decision makers in view to optimise the resource allocation under multidimensional policy requirements requested by cohesion, inclusion and smart growth demands. Demographic, economic, environment and social systems could beneficiate of this research results as inputs to various resource allocation mechanisms intended to respond at resources greatest needs targeted by regions.

Considering the extremely widespread use of TI (and its TDS Townsend Deprivation Scores) its potential to be calculated rur-urban level at NUTS 5 level in future is rather important. Another research direction will be the multi-criteria analysis with an increasing dimensions number that define deprivation, adding health, education, crime, and other key dimensions for dynamic urban / rural analysis consistent with the interdisciplinary and multidisciplinary research objectives assumed by DYNAHU project.

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