SOCIOECONOMIC TRANSFORMATION OF THE COMMUNE OF DOMŽALE – REASEARCH METHOD

DRUŽBENOGOSPODARSKE SPREMEMBE V OBČINI DOMŽALE - RAZISKOVALNA METODA

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Abstract   UDC 911.3 : 910.1 (497.12 "Domžale")

Socioeconomic transformation of the commune of Domžale – research method

In this article a method of measuring a degree of sociogeographic transformation of different parts of an area is described. It is based on a coefficient which includes several important indicators of transformation.

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Družbenogospodarske spremembe v občini Domžale – raziskovalna metoda

V prispevku je opisana metoda za ugotavljanje stopnje preobrazbe pokrajine zaradi delovanja družbenogospodarskih dejavnikov. Temelji na koeficientu, v katerega je vključenih več različnih kazalcev, s katerim ugotavljamo krajevne razlike v stopnji preobrazbe pokrajine.

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This paper describes a method for determining the level and the extension of the spatial changes in different parts of the region which has partly or as a whole undertaken more or less severe socioeconomic changes in the direction from rural to suburban area.

Methodological papers are not very common in Slovene social geography. The most complex approaches in the direction of determining the basic socioeconomic elements for the representation and the explanation of the landscape were made in the attempts of socioeconomic regionalisation of Slovenia (Yugoslavia; M e l i k, 1946; I l e š i č, 1958; M a l o-v r h, 1958; V r i š e r, 1990).

A coefficient described in this paper is a less complex attempt in the same direction. It was our intention to make a tool that will help us to determine local differences in the level of transformation. For that reason we designed the coefficient of intensity and extent of spatial changes (KIPS) which was used but not in detail described in author's doctoral dissertation (P e l c, 1991) and in its supplemented published version (P e l c, 1993). This coefficient proceeds from the hypothesis that the level and extent of transformation achieved by an individual settlement (area) is directly proportional to:
–the population growth of the settlement (area);
–the growth in the number of houses in the settlement (area);
–the percentage of the work force in the settlement (area) which is regularly employed, and
–the percentage of nonfarming households in the settlement (area)
and inversely proportional to:
–the percentage of all workers in the settlement (area) who are daily commuters, and
– the ratio between the average distance travelled to work for all workers in the entire region and the average distance travelled to work for people from each settlement (part of the region).

The population growth has great effect on the landscape and is widely used as one of the most important indicators of the transformation. In Slovenia the greatest portion of population growth in recent years is almost exclusively the consequence of immigration. The areas with greater influx of immigrants are changing more rapidly than the others, so this indicator plays an important role in determining the degree of transformation and is for that reason included in our coefficient.

The growth of the number of houses is not necessarily a linear function of the population growth. The areas with the prevailing family houses have more rapidly growing settlements than the areas with prevailing apartment buildings. We included this indicator to perceive differences between such areas.

The percentage of the work force in the settlement (area) which is regularly employed is an indicator which is supposed to indicate the degree of the dependence of the settlement (area) on secondary and tertiary sector. A high percentage of regularly employed in Slovenia usually means that the primary sector has an unimportant role in the economy of the settlement (area) which is for that reason more influenced by the nonagrarian spatial changes.

The percentage of nonfarming households in the settlement (area) is a very important indicator showing the degree of physical changes in settlements. High percentage of nonfarming households means a very small percentage of farmsteads in comparison with the share of other buildings with nonagrarian function. It is a consequence of the socioeconomic transformation. The role of this indicator in the coefficient is therefore also very important.

The percentage of all workers in the settlement (area) who are daily commuters indicates the importance of links with the centers of employment in the surrounding and the degree of economic independence of the settlement (area). Higher percentage of daily commuters usually means smaller degree of economic independence on one hand but also more innovations and a greater amount of new ideas that are coming with commuters and help to change the place of their residence on the other hand.

The ratio between the average distance travelled to work for all workers in the entire region and the average distance travelled to work for people from each settlement (part of the region) is a relative indicator of the character and the extent of changes caused by the flows of ideas, information and capital as a consequence of daily commuting to work. This changes are closely related to the distance between the place of work and the place of residence.

The coefficient of intensity and extent of spatial changes consists of all the above described indicators. We calculate it out of the following elements:

Pi_t – the number of inhabitants in the settlement (area) i at the time t;
Pi_{t-1} – the number of inhabitants in the settlement (area) i at the time t-1;
Hi_t – the number of houses in the settlement (area) i at the time t;
Hi_{t-1} – the number of houses in the settlement (area) i at the time t-1;
Zi – the number of workers in the settlement (area) i who were regularly employed at the time t;
Ai – the number of active residents of the settlement (area) i at the time t;
Di – the number of all workers in the settlement (area) i who were daily commuters at the time t;
Ki – the number of farming households in the settlement (area) i at the time t (assuming tha it is equal to the number of farmsteads),
SMD – the average distance travelled to work for all workers in the entire region,
$SMDi$ – the average distance travelled to work for people from settlement (area) i.

We calculate the coefficient in the following way. First we divide the product obtained by multiplying the growth of population ($Rp=Pi_t/Pi_{t-1}$), the growth of number of houses ($Rh=Hi_t/Hi_{t-1}$) and the share of regularly employed ($Dz = Zi/Ai$) by the product obtained by multiplying the share of daily commuters ($Dd = Di/Zi$) and the ratio between the average distance travelled to work for all workers in the entire region and the average distance

travelled to work for people from settlement (area) i (Rd = SMDi/SMD). Then we add the result of this division to the share of 'nonfarmsteads' (the residence buildings of people not engaged in farming and all the buildings with nonresidence function which are functionally connected with them) (Dn = 1-Ki/Hi$_l$):

$$\frac{Rp.\ Rh.\ Dz}{Dd.\ Rd} + Dn$$

Finally, we divide this sum by two and extract the fifth root out of it. The result is the coefficient which can be written with this equation:

$$KIPSi = \sqrt[5]{0.5 + \frac{Pi_t \cdot Hi_t \cdot Zi^2 \cdot SMD}{2 \cdot Pi_{t-1} \cdot Hi_{t-1} \cdot Ai \cdot Di \cdot SMDi} - \frac{Ki}{2 \cdot Hi_t}}$$

We used this coefficient in the commune of Domžale (Slovenia, NE of Ljubljana) and found out that the coefficient which is larger than 1.00 indicates a high level of urbanization (transformation).

We found this coefficient as a very useful tool for explaining the extent of differences in transformation of different parts of the city regions. We also think that it has to be improved through further examinations on more case studies.

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DRUŽBENOGOSPODARSKE SPREMEMBE V OBČINI DOMŽALE – RAZISKOVALNA METODA
Povzetek

Tu je opredeljena metoda, ki je bila uporabljena v disertaciji (P e l c, 1991; 1993), toda tam ni bila obrazložena. Naša metoda je doprinos h kvantifikaciji ugotavljanja pokrajinske transformacije.

Preobrazba pomeni preoblikovanje oziroma spremembo videza, oblike, v družbeni geografiji preobrazbo agrarne pokrajine, v industrijsko ali obmestno (suburbano). Izraz 'preobrazba' bi lahko uporabljali le, ko gre za večje spremembe in za prehod iz ene razvojne stopnje v drugo.

Sedanje pokrajinske spremembe večinoma povzročajo odnosi med mesti in njihovo okolico. Vpliv mest na njihovo bližnjo in tudi nekoliko bolj oddaljeno okolico, opredeljen kot proces (sub-)urbanizacije, povzroča tolikšne prostorske spremembe, da prihaja dejansko do preobrazbe obsežnih območij. Kjer so ti odnosi intenzivni, se oblikujejo mestne regije. K l e m e n č i č (1964) pravi, da je to tisti prostor okoli mest, ki je z njimi povezan v vsakdanjem življenju. Ta povezanost pa se kaže predvsem v dnevni migraciji na delo in v prodaji pridelkov v mestu. Na ožjem gravitacijskem območju je preobrazba intenzivna, v širšem pa počasnejša.

Koeficient intenzivnosti in stopnje doseženih prostorskih sprememb je namenjen ugotavljanju razlik v stopnji preobrazbe med manjšimi območji. Zasnovali smo ga na podlagi naslednjih postavk:
– rast števila prebivalstva vpliva na hitrost in obseg prostorskih sprememb,
– rast števila hiš v naselju je pomemben dejavnik spreminjanja njegove fiziognomije in obsega,
– stopnja zaposlenosti aktivnega prebivalstva pomembno vpliva na preobrazbo,
– delež nekmečkih domov kaže fiziognomske in funkcionalne spremembe,
– delež dnevnih migrantov v naselju izraža njegovo gospodarsko samostojnost in navezanost na druga zaposlitvena središča,
– povprečna oddaljenost dnevnih migrantov od delovnih mest v primerjavi s povprečjem za celotno preučevano območje izraža, kako močno so uveljavljeni mestni vplivi in z njimi povezane prostorske spremembe.

Večja rast prebivalstva pomeni tudi večjo stopnjo in obseg prostorskih sprememb. Zato je koeficient intenzivnosti in stopnje doseženih prostorskih sprememb premosorazmeren z rastjo števila prebivalstva v obdobju (t-1 do t).

Rast števila hiš ni nujno v linearni zvezi z rastjo števila prebivalstva. Tam, kjer se več novega prebivalstva naseli v novozgrajenih enostanovanjskih hišah, je fizična rast naselja večja kot tam, kjer zanje zgradijo stanovanjske soseske večstanovanjskih zgradb.

Delež zaposlenih prebivalcev od vseh aktivnih kaže na razmerje med tremi skupinami prebivalstva, ki se zaradi različnega načina pridobivanja dohodka med seboj bistveno razlikujejo tudi po vplivanju na spreminjanje pokrajine. Čisti kmetje z intenzivnim monokul-turnim gospodarstvom zaokrožujejo posesta in povečujejo obdelovalne površine. Polkmetje gospodarijo manj intenzivno ali celo ekstenzivno, imajo več travnikov in manj njiv, puščajo

parcele neobdelane ali pa jih dajejo v najem. Prebivalci, ki si dohodek v celoti pridobivajo zunaj kmetijstva, namenijo prosti čas vrtnarjenju, rekreaciji ali pa dopolnilni dejavnosti, s katero si poiskušajo dvigniti osebni materialni standard.

Delež nekmečkih domov je bistven za videz naselja. Prvi dve skupini prebivalstva sta bolj podobni, ker pridobivata sredstva za preživljanje s kmetovanjem in zato živita v podobno organiziranih in sestavljenih domovih, prilagojenih kmetijski dejavnosti. Njihovi domovi so bistveno drugačni in prilagojeni njihovemu načinu življenja in gospodarjenja.

Delež dnevnih migrantov od vseh zaposlenih govori o gospodarski samostojnosti naselij. V glavnem pomeni večji delež tudi večji obseg prostorskih sprememb, saj so dnevni migranti prinašalci številnih idej in inovacij v kraj, kjer bivajo in zato tudi ta kazalec pojasnjuje stopnje doseženih prostorskih sprememb. Tam, kjer je delovnih mest veliko, a so razpršena med medsebojno malo oddaljenimi majhnimi zaposlitvenimi središči, je kljub velikemu obsegu dnevne migracije dostopnost do delovnih mest relativno dobra. Tam, kjer pa je dnevna migracija na delo zaradi pomanjkanja delovnih mest usmerjena v bolj oddaljena zaposlitvena središča, pa je dostopnost do delovnih mest slaba. Z njenim slabšanjem pa se manjša tudi obseg in intenzivnost prostorskih sprememb.

Krajevne razlike v dostopnosti ugotavljamo tako, da najprej izračunamo povprečno oddaljenost vseh dnevnih migrantov območja, ki ga raziskujemo, do delovnih mest. Dobljeni povpreček primerjamo z dostopnostjo dnevnih migrantov po naseljih ali podobmočjih.

Skupek opisanih kazalcev je koeficient intenzivnosti in dosežene stopnje prostorskih sprememb (KIPSi) in ga računamo s pomočjo naslednjih izhodiščnih podatkov:

Pi_t – število prebivalcev v naselju (prostorski enoti); i v času t,

Pi_{t-1} – število prebivalcev v naselju (prostorski enoti); i v času t-1,

Hi_t – število hiš v naselju (prostorski enoti), i v času t,

Hi_{t-1} – število hiš v naselju (prostorski enoti); i v času t-1,

Zi – število zaposlenih prebivalcev v naselju (prostorski enoti); i v času t,

Ai – število aktivnih prebivalcev v naselju (prostorski enoti) i v času t,

Di – število dnevnih migrantov v naselju (prostorski enoti) i v času t,

Ki – število kmečkih hiš (predpostavka, da je to število enako številu gospodinjstev s kmečkim gospodarstvom),

SMD – povprečna oddaljenost dnevnih migrantov celotnega preučevanega območja od delovnih mest,

SMDi – povprečna oddaljenost dnevnih migrantov naselja (prostorske enote) i od delovnih mest.

Do koeficienta smo prišli tako, da smo dali enako težo rasti števila prebivalstva ($Rp = Pi_t/Pi_{t-1}$), rasti števila hiš ($Rh = Hi_t/Hi_{t-1}$), deležu zaposlenih od vseh aktivnih ($Dz = Zi/Ai$), deležu dnevnih migrantov od vseh zaposlenih ($Dd = Di/Zi$) in razmerju do povprečne dostopnosti celotnega območja ($Rd = SMDi/SMD$) na eni strani in deležu nekmečkih domov ($Dn = 1 - Ki/Hi_t$) na drugi. Koeficient izračunamo tako, da seštejemo zmnožek: $Rp. Rh. Dz. Dd^{-1}. Rd^{-1}$; in delež nekmečkih domov Dn. To lahko zapišemo z naslednjim matematičnim izrazom:

$$\frac{Rp. \, Rh. \, Dz}{Dd. \, Rd} + Dn$$

Dobljeno vsoto delimo z dve ter korenimo s pet. Če vstavimo v tak končni obrazec izhodiščne spremenljivke in enačbo nekoliko preuredimo, lahko zapišemo takole:

$$KIPSi = \sqrt[5]{0.5 + \frac{Pi_t \cdot Hi_t \cdot Zi^2 \cdot SMD}{2 \cdot Pi_{t-1} \cdot Hi_{t-1} \cdot Ai \cdot Di \cdot SMDi} - \frac{Ki}{2 \cdot Hi_t}}$$

Preizkus tako zasnovanega koeficienta na primeru občine Domžale je pokazal, da pomeni koeficient 1 ali več večjo stopnjo preobrazbe pokrajine iz podeželske v obmestno.

Razlaga preobrazbe pokrajine je uspešna le, če upoštevamo bistvene dejavnike, ki so za nastanek ali spremembo pokrajine najbolj odločilni. Vseh namreč ob uporabi še tako zapletenega in popolnega modeliranja ne moremo. Matematična merila, kot je opisani koeficient, so pri takšnih razlagah dobrodošla pomoč, da objektivno prikažemo razlike med območji. Ne more pa nadomestiti opisnih metod in logičnega povezovanja dejstev, ki so raziskovalcu znana o pokrajini in procesih, ki jo preoblikujejo. V takem dopolnilnem smislu je bil koeficient tudi uporabljen in kot takega ga tudi ponujamo v strokovno presojo in preveritev.