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Multi-Scale Approach and "Playing Scales" in Economic Geography

Abstract: The notions of multiscaleness and "playing scales" are considered for various spheres of economic geography: cartography, settlement geography, toponymics, ethno-historical geography, locating industrial production, touristic promotion, micro-regional (intra-urban) policy. The paper presents the idea of multiscaleness and "playing scales", as well as the possibility of application of a multi-scale approach in economic geography.

Keywords: multi-scale approach, multiscaleness, playing scales, regional policy, industry location, inter-regional competition, settlement

The idea of multiscaleness and playing scales

The expression „playing scales" was first used in the 1950s by a prominent Soviet geographer, professor Isaak M. Mayergoyz (Mayergoyz, 1986). This idea was later on used-to develop another theoretical achievement of Soviet economic geography – the notion of economic-geographic position (put forward by an even more prominent professor, Nikolay N. Baransky, the teacher of I. Mayergoyz and, as it is often said, "the teacher of Soviet geographers"). N. Baransky distinguished between macro-, mezo- and microposition, showing that the same geographic object should be considered differently depending on the choice of the variant of position.

As for „playing scales", it can be explained and illustrated by studying settlement systems, which was shown in our works (Jakobson, 1994), as early as in the 1990s. On geographical maps, a settlement is shown as a point, having no spatial dimensions or shape, and it cannot be shown otherwise. Such an approach is helpful also in statistics, as well as in municipal administration – to distinguish one administrative unit from another, even if in reality there is no obvious border between them.

But if we look at the same settlement in the scale of a topographic map, we shall see something much closer to reality. The settlement will have dimensions, shape and structure, it will consist of neighborhoods, sometimes remote from each other, it will perhaps be fused

with the nearest settlements. Such a view is necessary in physical planning, in social policy, etc.

Thus, considering the same city in various scales, we can see its distinct aspects and solve different practical tasks.

We think it is a very useful notion in economic geography and regional policy. Multi-scale approach is usually underestimated in regional economy, where all spatial entities are treated as similar to one another, as a point-form object, described by a line in a statistical table, without paying attention to its shape and size.

EXAMPLE OF IGNORING MULTISCALENESS

At the 27th International Conference "Effect of Innovativeness on the Economic Changes in Spatial Systems", we (Blinov, 2012) have mentioned the book by American authors F. Hill and C. Gaddy The Siberian Curse. How Communist Planners Left Russia Out in the Cold (Hill, Gaddy, 2003). The book has, rightly so, caused outrage of Russians, especially Siberian economists, politologists and geographers. The authors try to argue that the industrial growth of Siberia in between the 1940s and the 1970s was a great mistake, that this industry should die and millions of people connected with it should migrate and leave Siberia.

There is no room for polemics here. But we would like to pay attention to the principle error in the authors' approach. Siberia (that is larger than the whole territory of the USA) is for them just a point, associated with only one word: cold. Siberia, for them, is just the realm of cold – Siberia as an entity. They do not notice the difference between, say, Norilsk and Irkutsk. The former was founded, indeed, by "Communist Planners", situated in extremely severe conditions of Arctic and built by the prisoners from Stalin's camps. But in the 300 years-old Irkutsk, it is rather cold in winter (that is, colder than in Washington or Cracow but usually not colder than in Moscow and much warmer than in Norilsk) but very warm (even hot) in summer. Nor do they see the difference between new industrial cities erected by young enthusiastic newcomers and vast territories inhabited by indigenous peoples of Siberia, Buryats, Yakuts, etc., that have adjusted their economic activity (including agriculture) to local natural conditions and have no other land to live. Moreover, Russians who have lived for two or three centuries in Southern Siberia, or even much further to the North (along Lena, Yenissey, Angara, Ob rivers), should also be treated as "indigenous people", rather than "newcomers".

This is a good example of ignoring spatial multi-scale approach.

Multi-scale approach in cartography

The first geographers who had to deal with scales were cartographers – perhaps even since Ptolemeus' times. This question has been elaborated on and discussed in detail in general and in economic cartography. However, a number of interesting problems still exists. Among them is the task of three dimensional objects mapping, which is not quite typical, as the maps are usually flat, or, in the case of a globe, spherical. But when necessary, we have to use different scales for various dimensions.

People are usually impressed or even shocked by the height of Mount Everest or the depth of Mariana Trench. But they would not be, if they saw them in a three dimensional model in the same scale that is used for a topographic map. Indeed, what are 8 or 10 kilometers when it comes to distance? It is just near, it is inside a city, it is a walking-distance.

A good example of solving such a problem is the perspex model of the Baikal Lake exhibited in Baikal Ecologic Museum (fig. 1). The lake is the deepest in the world, and this should be presented. It was possible with the help of using different scales.

Fig. 1. Perspex model of the Baikal Lake in Baikal Ecologic museum with different scales for different dimensions (photo by A. Jakobson)

Multi-scale approach in toponymics

The phenomenon of multiscaleness in toponymics was investigated by V.A. Nikonov (Nikonov, 2011), who paid attention to the important regularity: place names are often given not on the basis of a typical feature, but for a unique one. He gives impressing examples: the name Glass Valley in wild Far East taiga does not mean glass works or stores were situated there; there used to be a lonely Chinese cabin with a piece of glass in the single window – while there was no glass within very long distance.

But the situation is different when the place name was given by foreigners (Europeans in Africa, America, etc.). They compared a place not to the surrounding area, unknown to them, but to their far-away homeland. They could name a river or a coast after some exotic animal found there, although this animal could be common in those lands and typical for a vast territory.

In ethno-historical geography, if we try to determine the historical area of some ethnic group settlement using place names, it should be remembered that most tribal names are met not in the center of the ethnos dwelling, but in the periphery. V.A. Nikonov shows that the villages with the adjective "Russian" in their name are widespread in the areas where Russians' neighbors are the Tatars, the Chuvash and other ethnic groups, not in purely Russian territories.

MULTI-SCALE APPROACH IN INDUSTRY LOCATION

Solving the tasks of locating industrial production, in accordance with the classic models, is in practice multi-scale in its nature, although the theory of location factors has not always reflected this. Multiscaleness here means using various scales in consequent stages of analyses. First, in accordance with the principle location factors (such as raw materials, power, consumers, labor force, transportation, etc.), the region of location is determined, by comparing it with other regions of the country. Then, the precise site of location must be found, and here other factors are to be taken into account – such as land, environment, agglomeration, etc.

Therefore, in the late 1940s, among other preplanning decisions, two investment objects were chosen, which were strategically connected with Irkutsk. They were Tuymazy–Irkutsk pipeline (connecting Volga oilfields with the refinery to be built in Siberia) and Irkutsk aluminum works. Yet later on, while seeking site for the refinery, the planners discovered that there was no room for such a plant in Irkutsk, due to its mountainous relief. Such a site was found 60 km to the West. The refinery was constructed there, alongside a new city called Angarsk. The scheme was repeated later on with the aluminum works: the plant and a new city called Shelekhov were erected about 20 km to the South of Irkutsk.

Another example is connected with one of the centers of iron and steel industry in Mariupol, Ukraine. This place is characterized by a very favorable geographic position: on the shore of the Sea of Azov, to the South of the Donbass coalfields (the port used for coal export) and with the deposits of iron ore in Crimea on the opposite shore of the sea. This is why, as early as in the end of the 19th century, Mariupol was chosen by a Belgian company for a location of a major plant – so to say, in macro-scale.

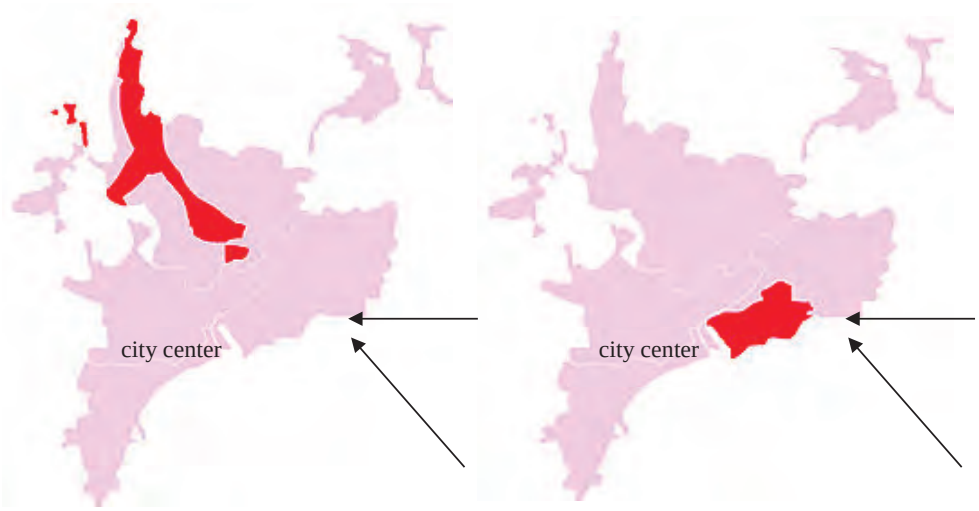

Fig. 2. Location of two iron and steel plants in the city of Mariupol, Ukraine: 1) prerevolutionary "Russkiy Providans" works; 2) "Azovstal" works, built in the 1930s. The arrows show prevailing wind directions

While solving the location task in micro-scale (fig. 2), the company chose a variant, most suitable for both technical and economic reasons – on the very seashore, near the port. But it appeared to be environmentally dangerous (because of the prevailing wind direction, the gases emitted from the plant would contaminate the city center) and was rejected by the city authorities. As a result, the plant was built to the north of the city.

But this is not the end of the story. In the era of the 5-year plans of the 1930s, a decision was made to locate another iron and steel plant in Mariupol. This time, under different political conditions, it was built on that very site, which was bad from the environmental point of view but good from the economic one.

Multi-scale approach to promotion of tourism

Let us return to Siberia and switch our attention from production to tourism. In the macro-scale, the most important factor attracting tourists to Eastern Siberia is the lake Baikal. In this sense, it competes with similar places of interest (lakes, mountain systems, etc) in the world. Both the Irkutsk Region (the Western bank of Baikal) and the Buryat Republic (the Eastern bank) are hoping that tourists choose Baikal. But if such a decision is made, a tourist has to change scale and choose between Irkutsk and Ulan-Ude as international airports and the gateways to Baikal. In this scale, the two regional capitals are considered as rivals. If Irkutsk is selected, the scale is changing again: a visitor who has come to Irkutsk eager to see lake Baikal can leave the city immediately without staying here. What was the factor of

"attraction" in one scale may thus turn into a factor of "distraction". All this should be taken into account in promoting tourism.

INTRA-URBAN REGIONAL POLICY

Finally, let us consider some aspects of international experience of regional policy. One of the newest trends in it – in fact, it goes about a new scale in regional policy – is intra-urban policy.

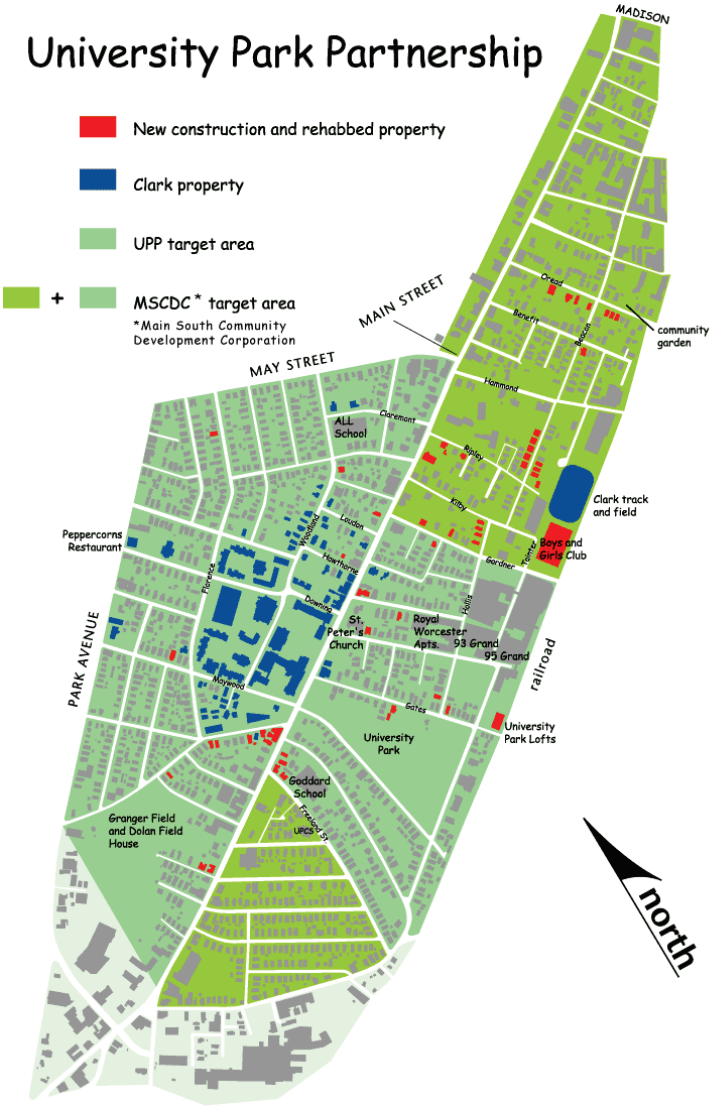

Fig. 3. Clark University vicinity and the zone of intra-urban policy (Worcester, USA)

We studied this experience on the example of the American university city – Worcester (Massachusetts). For this city, the problem is characteristic and common for many American cities: the main street (which is often called just "Main Street") connects prosperous business center with wealthy suburbs, but between them lies the zone of socially disadvantaged „abyss".

In Worcester, there is a Main Street with such problems. Yet on Main Street in, at a considerable distance from the business center, which is surrounded by slum quarters, the Clark University is situated. It is not the oldest, nor the most famous one in the USA, but still not the worst. In particular, it is considered number one in the country in the field of geographic education and publishes a well known journal Economic Geography.

The University management started its own micro-regional policy to change the face of the neighborhood (fig. 3) as early as in the 1990s. This policy included: incentives for professors to move to the University area (the first one to buy a house there was the President of the University); lectures for the schoolchildren from the area; admission priority for them and smaller education fees; development projects to attract new industries (i.e. jobs) into vacant buildings of closed factories.

This case is an innovation in regional policy, which is usually related to the activities of the authorities at various levels, an innovation not only from institutional, but also from geographical point of view.

Concluding remarks

The analysis indicates the various possibilities of application of multi-scale approach in considering the various phenomena in the field of geographical sciences. It appears that this approach can be used especially in studies related to the location of industrial activities. Therefore, it seems important to further investigate this issue and to promote such an approach among the economic geographers.

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