GEOGRAFICKÝ ČASOPIS

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OLIVER BAŠOVSKÝ

GEOGRAPHICAL PARTICULARITIES OF REGIONAL SYSTEMS OF TOWNS OF THE ČSSR

Oliver Bašovský: Les particularités géographiques des systèmes régionaux des villes de la ČSSR. Geogr. Čas., *32*, 1980, 2—3; 6 figures, 1 tableau, 14 réf.

L'auteur étudie les systèmes régionaux des ville des unités régionales les plus hautes de la ČSSR, la ČSR, la SSR et les régions. Les systèmes régionaux des villes de ces unités il interprète par la règle de Zipf, il clarifie les particularités géographiques fondamentales des villes et il montre sur les possibilitiés du development, qui permettront l'augmentation de la proportionalité des systèmes.

The highest regional units in the ČSSR, beside the two republics—ČSR and SSR, are the regions. In spite of the formal young character of the regions, they were formed at the administrative reform in 1959, these regional units began to show in outline in the spatial structure of our country much long ago. In substance the frame of the present regional division in the ČSSR was pictured already by older works of our geographers Dědina V. (1927) and Korčák J. (1934). The gradual formations of the present regional units was conditioned by several factors of the socioeconomic and physico-geographical character (specificity of the economy development, varied development of the industrialization, the transport network, natural slope areas, etc.). The organizational establishment of regions in the 1959-s was only an official confirmation of the preceding development and naturally a further stimulus to their development. To the development and specific features of the regions is related also the evolution and the individual characters of the towns systems of these regional units.

An analysis of the towns regional systems can be made from various aspects and by various methods. For our purposes— to explain the main geographical particularities of the towns systems of the individual regions— we find most useful the use of the method of Zipf G. K. (1941), or the rule formulated by him, the rank-size-rule, whose theoretical form is $P_n = \frac{P_1}{n}$. According to this rule the size of a town of the given system is determined by the size of the first town divided by the rank of the given town. According to this rule the size of the second town has the half-size of the first one, the third the third-size, etc. The analysis of the towns network by Zipf's rule, or

its verification occupied several foreign and our authors. From our authors they were Bašovský O. (1972), Verešík J. (1974), Korčák J. (1979). Meanwhile the two first authors analyzed the relationship rank-size of the ČSSR towns, or of the SSR, trying to explain the main particularities of the towns system of Slovakia, Häufler V. (1975) tries to apply the Zipf's rule and its elaboration in the Medvedkov's model on the towns system of the capitalist and so-

Table 1

System	Number of inhabitants of the town rank				
	I.	II.	III.	IV.	V.
According to Zipf	1000	0.500	0.333	0.250	0.200
Accord. to Stewart	1000	0.315	0.200	0.140	0.120
ČSSR	1000	0.319	0.283	0.285	0.137
ČSR	1000	0.319	0.258	0.137	0.076
SSR	1000	0.472	0.180	0.163	0.150
Centr. Bohem. region	1000	0.053	0.028	0.027	0.174
South Bohem. region	1000	0.344	0.294	0.223	0.025
West Bohem. region	1000	0.290	0.171	0.135	0.123
North Bohem. region	1000	0.992	0.750	0.695	0.604
East Bohem. region	1000	0.920	0.308	0.342	0.230
South Morav. region	1000	0.189	0.119	0.107	0.086
	1000	0.293	0.285	0.273	0.180
West Slovak. region	1000	0.147	0.145	0.113	0.087
Centr. Slovak. region	1000	0.917	0.866	0.553	0.515
East Slovak. region	1000	0.380	0.155	0.147	0.143

cialist countries of Europe. Korčák J. (1979) touches a narrower problem, the so-called law of the leading town on the basis of analysis of relationships of two of the biggest towns unified more or less in 264 land units of the world. From the foreign authors, apart from the author of the Zipf G. K. rule (1914) the analysis of the towns network from this point of view occupied numerous authors such as Berry B.J.L. and Garrison W.L. (1958), Stewart CH.T. (1958), Dziewoński K. (1962) and others. The Zipf rule as one of the interpretation methods of the towns network particularities is widely treated in collective works on the geography of population and economic geography (Domański R. (1977); Hagget P. (1979); Jagieński A. (1978) and others). From the above given works abroad of the greatest significance for our purposes is the work of Dziewoński K. (1962), analyzing the particlarities of the towns network of the former large duchies of Poland. The remaining works apply the rule of Zipf on the towns systems of countries, or larger units.

On the basis of data of the *Retrospektivní lexikon obcí ČSSR 1850—1970.* 1850—1970 (1978) there were set up towns for the ČSSR, ČSR and SSR, as well as of individual regions according to their sizes for the years of 1869, 1900, 1930, 1950, 1970. Data for towns according to the above given regional units were represented on graphs with a logarithmic scale. The particularities of development of the towns regional systems were uncovered by confronting the course of curves on the basis of real values and the theoretical curve. We remark that the curves of real values are influenced by the fact that the

lexicon gives values according to the administrative state from 1972. Then the curves for 1930 were left out on the graphs, as these are strongly nearing the curves for 1950.

The following table shows the sizes of the 5 first towns in the rank after the ČSSR, ČSR, SSR and the individual regions under the assumption that the size of the first town in rank in the given regional units equals 1.000. Then the table gives the theoretical size of the 5 first towns according to Zipf and according to Stewart who derived the sizes of the 5 first towns from the emphirical study of a greater number of countries of the world. From the given table, as well as appended graphs the conclusions can be derived.

As it is seen from the table and mainly from Fig. 1, the network of towns of the ČSSR can be devided in two parts. In the first part (2—13 rank) the real sizes of towns, excepting the towns of 3. and 4 rank, differ strongly from the theoretical sizes, assumed by the rule of Zipf. In the second part (beginning with the 14. town in the rank) the real values are very close to the theoretical sizes. When we compare the curves for individual periods we see that meanwhile the difference between the theoretical and real sizes of towns increases in 1869—1950, the system of towns of the ČSSR seems to increase its irregularity, in the meantime the period of the last twenty years is noted for the decrease of the diferences between the real and theoretical sizes, the regularity tendency of the system gains force. It is particularly marking in towns of lower ranks. Here seems to be reflected in a full measure the law of planned and uniform development of areas and of their centres, so typical for the socialist period. How can the system irregularities of towns in the highest ranks be explained? The past development, mainly the rapid industrialization conditioned that already in the middle of the 19th century the second place in the system of towns was gained by Brno, which has maintained its position up to now, moderately increasing the difference between the real and the theoretical size. A rapid economic development of the South Moravian region after the Second World War, as

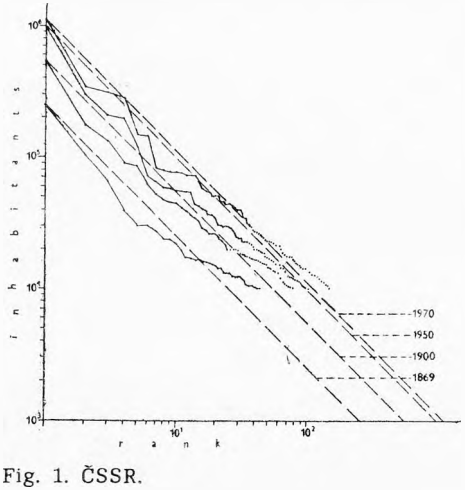

Fig. 1. ČSSR.

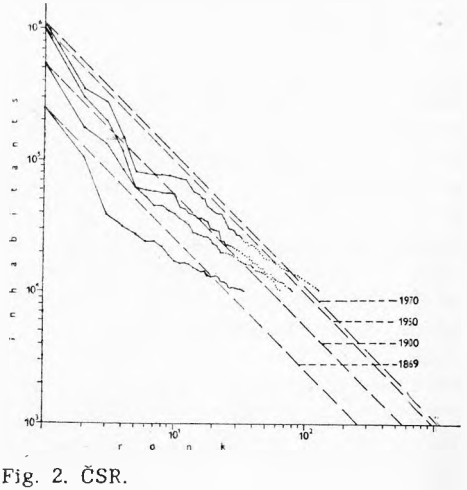

Fig. 2. ČSR.

well as a quickened development of Slovakia and of its leading center Bratislava, has for result that Bratislava and Ostrava have by their real sizes equalled the theoretical ones and Bratislava on condition that it will maintain its rate of growth conditioned by a high natural, as well as a considerable migration increment, may gradually occupy the second place, in the system of towns of the ČSSR. A fast development was registered also by Plzeň and Košice, i. e. towns of the 5. and 6. rank. A gradual regulation of towns in the ČSSR in the 1—6 rank can be assumed with justification. Towns in the 7—13. rank on the one hand represent important regional centres (Olomouc, Hradec Králové, České Budějovice, Ústí nad Labem, Liberec, Pardubice) and on the other hand the quickly growing towns of the Ostrava region (Havířov, Karviná). It seems that this „cut" in the system of towns of the ČSSR can be moderated only by a quickened development of regional centres in a long-term perspective.

The system of the ČSR towns (Fig. 2) presents similar particularities as the town system of the whole ČSSR. Great differences between the theoretical and real sizes are in towns of the 2—11. rank, meanwhile in the further ranks the town system, mainly towards 1970, has strongly neared its theoretical picture. Irregularity in the first phase of the curve has been caused by inadequate sizes of towns 2. (Brno) and of the 4—11. rank (Havířov, Olomouc, Hradec Králové, České Budějovice, Karviná, Ústí nad Labem).

The system of the SSR towns (Fig. 3), mainly in the past (1869—1930) carried many marks of underdevelopment. The small size of Bratislava, 1. towns in the rank, conditioned that towns beginning from the 4—5 rank by their real sizes exceeded the theoretical sizes. This indicated a more strongly developed network of smaller towns, which by their number compensated the non existence of a bigger town core. With a later development Bratislava

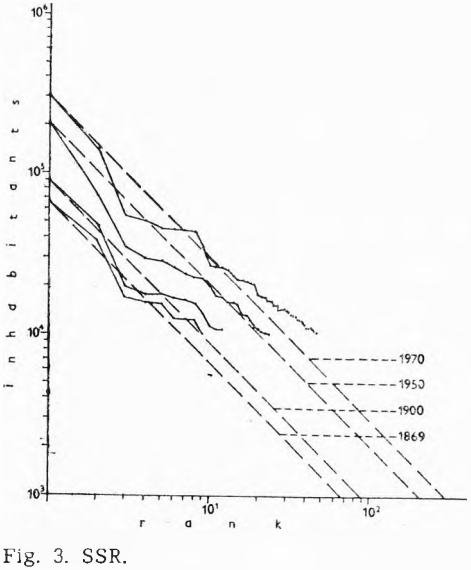

Fig. 3. SSR.

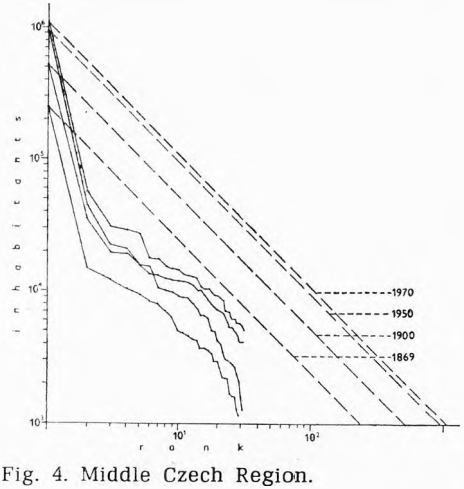

Fig. 4. Middle Czech Region.

began to grow rapidly, towns of the 2.—10. rank began strongly to lag behind toward 1950. To 1970 the relationship between Bratislava and Košice equalled, however, a hiatus took place caused by a weaker development of middle size towns (3—6 rank). In the lower items of the system of towns of Slovakia a regularity holds already, the real sizes of towns with a growth of the rank number exceed always more the theoretical sizes. In the system of the Slovakian towns, differently from the system of the ČSR towns, there is an excessively developed network of smaller towns. The strengthening of the development of leading items and of the middle size towns in the system of the Slovakian towns, forms the main conditions of its effective development.

From the table we can see considerable differences of real sizes of the 5 first towns of individual regions from the theoretical sizes. It is interesting to note that the average sizes of the 5 first towns calculated for 10 regions of the ČSSR are almost identical to the theoretical sizes (1.000; 0.453; 0.312; 0.252; 0.216). Systems of towns of the ČSSR regions according to the relations according to the relation rank-size can be divided in three groups:

The first group is formed by the Central Bohemian, South Moravian, West Slovakian and the East Slovakian region (Fig. 4). These regions are distinguished by a high cencentration of population in the leading town. In these regions there are the biggest town concentrations of the ČSSR. This particularity reflects also in the course of curves of the real and theoretical sizes. Between the real and theoretical values there are the biggest differences. If for the basis of theoretical sizes we took the real size of the second town in the rank, we would obtain a picture of a relatively regular distribution. The non proportional size of the capital town is conditioned by a weaker development of the other members of the regional system of towns. Two slovak regions — differently from two czech regions—had in the past (1869—1900) — a relatively equalled network. It indicates a weaker development

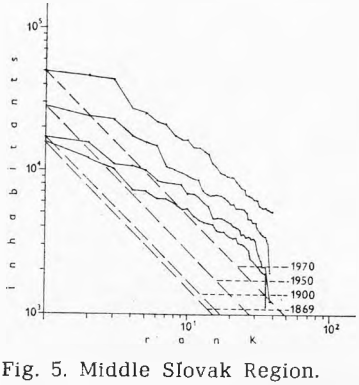

Fig. 5. Middle Slovak Region.

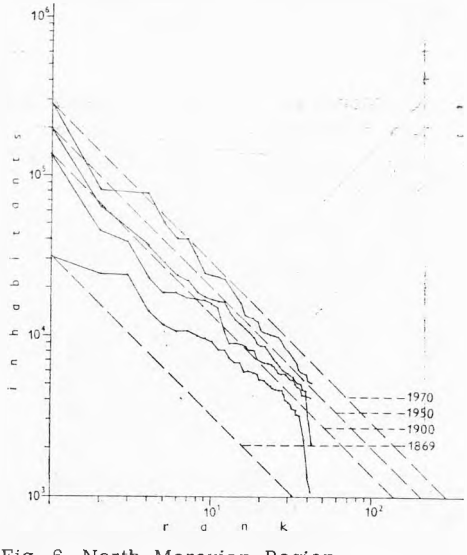

Fig. 6. North Moravian Region.

of the regional system of towns of the slovak regions in the past, or their rapid development during the last 20 years.

The second group is represented by the North Bohemian, East Bohemian and the Central Slovakian region (Fig. 5). They are regions with an opposite anomaly as it is in the previous group. In these regions the real sizes far exceed the theoretical sizes, the curve of the real sizes of towns stretches upward. This anomaly is conditioned by a small size of the leading town of the regional systems. This irregularity is caused by the fact that the regional system of towns has two almost similarly big leading cores (North Bohemian region—Ústí nad Labem, Liberec; East Bohemian region—Hradec Králové, Pardubice). The Central Slovakian region has even three cores (Žilina, Banská Bystrica, Martin).

The third type is represented by the North Moravian, South Bohemian and the West Bohemian region (Fig. 6). It is a region with a regular type of the regional system of towns. The real theoretical sizes of towns differ but only in a small measure. They comprise two economically the most developed regions of the ČSSR with important town concentrations (Ostrava, Plzeň) and the more weakly developed South Bohemian region, but with a proportionally equally developed regional system of towns. It is interesting that regions in1869 in the course of the curve of real sizes resembled the previous type. Their transformation to a regular type is the result of a later and post-war economic development.

From the above given analysis there results a necessity mainly to strengthen the main ites of the regional systems of towns, which represent big and medium towns. By stimulation and a quickened development of towns of this size of the regional system of towns they will become more equilibrated even if they maintain further on the particularities resulting from the regional particularities of the ČSSR regions.

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Oliver Bašovský

GEOGRAFICKÉ ZVLÁŠTNOSTI REGIONÁLNYCH SYSTÉMOV MIEST ČSSR

Najvyššími regionálnymi jednotkami ČSSR popri dvoch republikách sú kraje. Napriek svojej formálnej mladosti začali sa črtať v priestorovej štruktúre nášho územia už dávnejšie. So špecifickými geografickými črtami krajov a zvláštnosťami ich vývoja sú späté aj osobitosti regionálnych systémov miest týchto celkov.

Pre objasnenie zvláštností systémov miest ČSSR, jej dvoch republík a najmä krajov, používame metódu G. K. Zipfa (1941), široko používanú v našej i zahraničnej literatúre. Vzťah veľkosti a poradia v rôznych časových obdobiach za regionálne jednotky ČSSR znázorňujú obr. 1—6. Možno z nich vyvodiť tieto závery:

1. Regionálne systémy miest ČSSR, ČSR a SSR (obr. 1, 2, 3) i napriek určitým rozdielom majú zásadné spoločné črty, ktoré sú
— v značnej rozkolísanosti skutočných veľkostí na rozdiel od teoretických veľkostí v horných častiach kriviek, reprezentujúcich najväčšie mestá týchto systémov,
— slabý rozvoj miest stredných veľkostí,
— pravidelnosť systému miest v nižších poradových číslach,
— postupné zbližovanie skutočných a teoretických veľkostí, pozorovateľné menovite v posledných 20 rokoch ako dôsledok plánovitého rozvoja oblastí.

2. Krivky vyjadrujúce vzťah poradia a veľkosti za jednotlivé kraje ČSSR možno rozdeliť na 3 typy:

Prvý typ reprezentujú Stredočeský, Juhomoravský, Západoslovenský a Východoslovenský kraj (obr. 4). Krivky charakterizujú veľké rozdiely medzi skutočnými a teoretickými veľkomestami miest, čo spôsobujú neproporcionálnu veľkosť vedúceho mesta a slabší rozvoj ostatných členov systému.

Druhý typ predstavujú Severočeský, Východočeský a Stredoslovenský kraj (obr. 5). V týchto krajoch skutočné veľkosti omnoho prevyšujú teoretické veľkosti miest, krivka je vypnutá nahor. Túto nepravidelnosť spôsobuje fakt, že regionálny systém miest má 2—3 vedúce jadrá rovnakej veľkosti.

Tretí typ reprezentujú Severomoravský, Juhočeský a Západočeský kraj. (obr. 6). Ide o normový typ, kde je vysoká tesnosť skutočných a teoretických veľkostí. Sú to kraje s proporcionálne rozvinutým regionálnym systémom miest.

Uvedená analýza regionálnych systémov miest poukazuje na nevyhnutnosť rozvoja, menovite stredne veľkých miest ČSSR.

Obr. 1. ČSSR.

Obr. 2. ČSR.

Obr. 3. SSR.

Obr. 4. Stredočeský kraj.

Obr. 5. Stredoslovenský kraj.

Obr. 6. Severomoravský kraj.

Tabuľka 1. Vzťah poradia a veľkosti prvých piatich miest ČSSR a jej regiónov.