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**The changes in the functional urban region in the new socio-economic conditions in Poland. The case of Toruń.**

**Los cambios funcionales en las regions urbanas en las nuevas condiciones socioeconomicas. El caso de Toruń**

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**Introduction**

The deep socio-economic transformation and the introduction of a free economic market in Poland after 1989 implemented tremendous changes both on the economic and social plane. The changing economy resulted in the adjustment of employment structures, which meant liquidation of numerous industrial plants, introducing new technologies and mass redundancies, especially in the industry. Hence, political system transformation and free market competition caused on one hand de-industrialization and on the other the expansion of the services sector. In those circumstances some of the towns have created their influence range, for some it has been an opportunity to expand their territories, others have limited them. Thus an essential research task is to analyse changes in the functional urban regions in the current socio-economic conditions in Poland. For scientific reasons the town of Toruń has been chosen, as a historically formed town, 209,000 citizens (2003), in Kujawsko-Pomorkie Voivodeship (in Poland, administrative regions of the 1st order). A town which due to the transforming and restructuring has diminished in its industrial function; however, has increased its higher level of servicing functions, such as higher education, 40 thousand of students at Nicolaus Copernicus University, tourism and banking. The location which typify Toruń in the short distance: 40 km from Bydgoszcz (373,000 citizens - 2003), and 56km from Włocławek (121,000 citizens - 2003), has impact on form its functional urban region.

The aim of the following article is an attempt to show the current conditions influence on the functions of Toruń's urban region and which of the formerly shaped socio-economic connections have been reconfigured. Thus it is essential to investigate whether the present

development determiners are quality moulders to the town-surroundings relations modifying the shape of the relatively stable town's influence zones.

The urban region conception is the theoretical basis for the analysis. The concept resulted from earlier models of town development and spatial diffusion of socio-economic phenomena. It developed dynamically in the 1970s leading to new variations on the concept of an urban region in a shape of a daily urban system or a functional urban region (Korcelli 1981:189).

At present the urban region conception in all aspects facilitates taking into consideration an inner town structure as well as a regional and national structure of settlement. It allows to interpret both the process of a city developing into an agglomeration and an orderly description of a complex relationship structure in the settlement system on the regional and national scale (Korcelli 1981). It was the possibility of connecting the two totally different research approaches: an inner town structure and an outer functioning basis that allowed the common usage of the term *urban region* both in the development theories of the settlement system and also in a single town development description.

It is much elusive to present the peculiarity of forming and developing of an urban region on the national or regional scale in an single universal model which would respect all conditions and factors of the development. The characteristics of the functional urban regions on the national level relying on a limited number of relations can be found in e.g. works of Korcelli and others (1981) and Potrykowska (1989). According to their observations the essential features differentiating the distinguished urban regions next to their inner structure are their intensity, range and the level of closure of local connections.

Having realized the individual development and shaping conditions of the urban regions, the following article attempts to display the relations between the town and region on the example of a single distinguished town, Toruń. The basis for the analysis comes from the detailed empirical research of a migration burden conducted both before 1989 and contemporarily at the turn of the 20<sup>th</sup> century.

The article assumes that the concentration of population and varied forms of socio-economic activity in big cities contributes to the rise in a disproportion between regional centers and their background. The effect of the phenomena is the shaping of functional domination system of the town with respect to the surroundings (servicing region).

As many works proved (among others Korcelli 1981, Dziewoński 1970, 1990) the analysis of the range and intensity of relations between the town and its widely understood surroundings shows the occurrence of function groups having characteristic ranges.



Furthermore, most of the connections close between two spatial ranges, one corresponding to an urban region scale the other to distances among main national urban areas (agglomerations). Hence, on the regional scale a part of socio-economical activities is closed.

The size and spatial layout of the functional urban region is a cumulated effect of the inner town structure and the characteristics of the settlement net. It is essential to ascribe the cardinal meaning to the magnitude and functions of the competitive centers. In case of regional centers functioning in a simple settlement net, plenty of mutual connections between the town and its burden zone are shaped on the basis of central functions. Moreover, the connections show a relative stability in time. Ahierarchical relationships, e.g. productive, mostly create relationships in a larger spatial scale and are characterized by a substantial changeability both in time and space.

The consequence of functional dependence between a town and its servicing region is the occurrence of intense and stable population flow. Personal contacts within population are a crucial base for creating social bonds, exchanging behaviour patterns and adopting city lifestyle. Social relations, next to the functional relationships, are an essential part of an urban region integration.

In already shaped urban regions, and as such the authors believe Toruń's region to be, there is a distinct spatial closure of the balancing area of supply and demand for goods and services fixing the state of comparative equilibrium. It does not mean that a once constituted functional urban region remains in a static arrangement. A number of determiners influencing its composition and development causes constant modifications so even though there is an assumed stability in a formed system its varied elements mutate.

The article will attempt to distinguish which of the conditions forming Toruń's urban region have significantly changed since 1989, since the beginning of political and socio-economic system transformation in Poland. The results of the detailed empirical investigations of the corollaries changing the intensity and range of the population flow served as a base for the indication of general tendencies for the changes in functioning of urban regions in Polish conditions.

The issue of mutual relationships between towns and their widely reckoned surroundings, including different towns and cities has been a crucial trend in urban studies and a subject matter for many a researcher for numerous years, both in Poland and abroad. The effect of the popularity has been the development in theoretical conceptions and a number of empirical investigations depending on those conceptions. The scientific review is limited only to the issue of an urban region. In the group of scientists concerned with the

subject, among the others, there is P. Korcelli, who besides theoretical consideration employed empirical research of urban regions (Korcelli 1987, 1981, 1989). Many disputable issues resulting from the methodology of urban research and the settlement system, those also devoted to functional structure and economic regions, are discussed in works of K. Dziewoński (1967*a*, 1967*b*, 1968, 1970, 1990). Additionally, both authors debated an evolution of an urban region conception in the worldwide literature. M. Dutkowski, among the others, attempted at a comparison of main theoretic-methodological concepts of urban region from the point of relationships between the town and its surroundings and at a demonstration of their usefulness and application (Dutkowski 1994). The issue of functional urban regions is not a new subject in both Polish as well as foreign geographical literature. The urban region research based on detailed data concerning commuting was extremely popular in the 1960s and 1970s in Poland. To the most acclaimed one could rate those of Lijewski T. (1967), Gawryszewski A. (1974), Dziedziuchowicz J.Z. (1979), Namysłowski J. (1980), Korcelli P., Potrykowska A., Bodzak D. (1981), Potrykowskiej A. (1989).

The popularity of the urban region concept is depicted not only in numerous researches of the settlement systems in Poland but also in works devoted to single urban centres, such as many of those conducted for the town of Toruń. One should mention works of Namysłowski (1976, 1977*a*, 1977*b*) or Sokołowski and Stachowski (1993) concerning Bydgoszcz-Toruń agglomeration based on the analysis of commuting or those of Czetwertyński-Sytnik (1981) regarding the development of Toruń's suburban area. From more contemporary articles the works of Szymańska and others devoted to the range of the educational functions of Toruń (Szymańska 1998) and permanent migration (Szymańska 2000, Szymańska and others 2000). The subject was also discussed by Hołowiecka (2002, 2004*a*, 2004*b*) in concern to commuting and delimitation of socio-economic influence zones of Toruń. In those works Toruń is depicted as a regional centre in the settlement system of Kujawsko-Pomorskie Voivodeship and in Poland. The results confirm a relatively closed functional urban region of Toruń along with the regional centres and urban regions development research on the national level (acc. to Korcelli there were 45 urban regions in Poland in 1970s - Korcelli and others 1981) carried out by many scientists proved Toruń as a regional centre and functional urban region (among the others: Korcelli 1981; Korcelli, Potrykowska, Bodzak 1981; Potrykowska 1989; Rykiel 1985; Zagożdżon 1979).

### **The characteristics and changes in the functional urban region of Toruń in 1970 – 2000**



In the following article the basis for recognizing Toruń's urban region are the functional connections expressed by an intense and relatively stable population flow, which are commuting to work, secondary and higher schools, or commuting for social and living reasons. The important role in creating relations between the town and its surroundings play connections formed on formally devised areas of administrative institutions, healthcare and judicial system and so on, however, they are of no interest to the article. The intensity and range of the connections rely upon the town's potential (functional structure, inner features) as well as its rival position in the settlement system.

Mutual relationships forming between the town and its surroundings could possess varied characteristics. They manifest in the population, goods, capital or information flow. Theoretically, all of them could indicate the town's influence; however, for practical reasons, the registration of capital and information flow is extremely difficult. As mentioned above, it is quite easy to distinguish as a manifestation of the forming of a functional urban region a regular (frequent or daily) population flow, of which commuting is the most crucial element. Since the common availability of the statistic data it has become the basis for the delimitation of the urban regions and the assessment of the development of settlement system in Poland.

The mass commuting phenomena appeared in Poland on the account of the immense postwar industrialization. The plants were located in the towns, which created numerous workplaces, and workforce shortage was compensated by commuting; in the 1960s and 70s 3 million citizens were commuting on a daily basis.

The example of delimitation of urban regions on the basis of the analysis of commuting for all the Polish towns of the regional centre importance, including Toruń in 1973 and 1978 appear in Bodzak and Potrykowska (1989). The results of the researches depict Toruń's urban region covers the area of 24 gminas (in Poland, administrative regions of the 3th order), however, the highest intensity of commuting derived from the neighbouring southern and eastern gminas (Fig. 1A). It is worth noticing that 13.3 thousand of commuters came to Toruń everyday in 1973. In 1978 the quantity and intensity of workforce flow increased, which was connected with the accretion of industrial functions of the town, the development of chemical industry, the production of artificial and natural fibers, the expansion of the functional urban region of Toruń by the concise area of the eastern gminas zone (Fig. 1B).

In the second half of the 1970s, Toruń as a new capital of Toruńskie Voivodeship gained new development impulses in a form of socio-economic investments. The

administrative function not only helped a further industry development but it also gave the possibility to expand services, public institutions among them. In consequence of the dynamic town development the supply for workplaces and quantity of commuting increased. In 1988 17.7 thousand of workers commuted on a daily basis, in 2000 only around 9 thousand. Hence, before the transformation period till the 1980s a daily commuting to Toruń was increasing systematically contributing to the expansion of the functional urban region. (Fig. 2A).

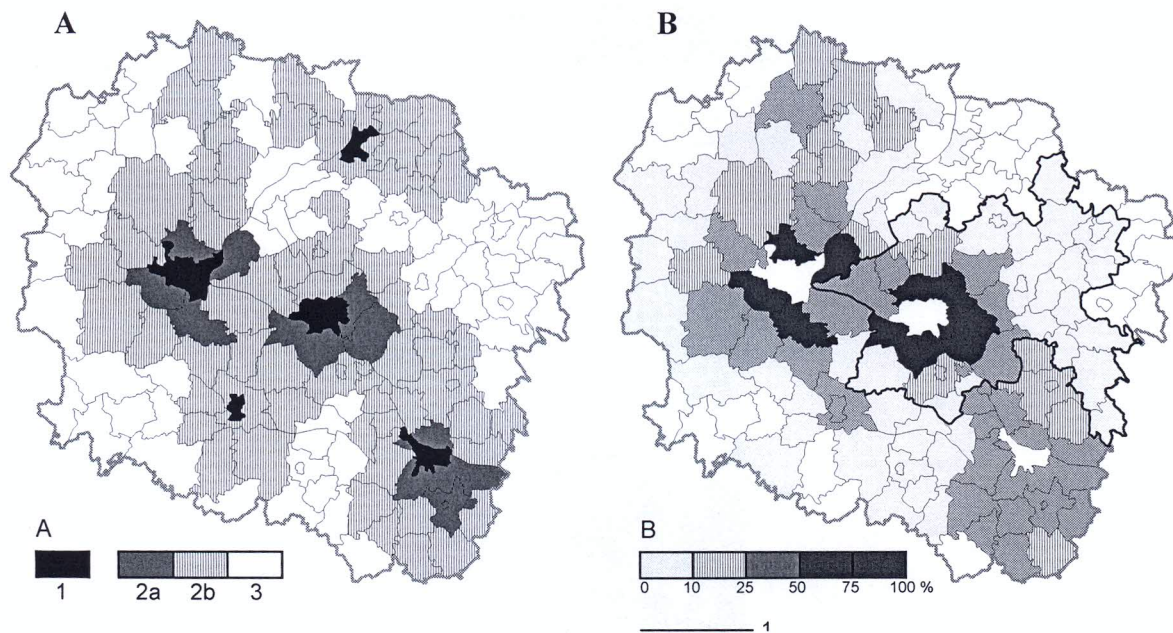


Figure 1. Functional urban regions within the borders of present Kujawsko-Pomorskie Voivodeship: A – in 1973, B – in 1978 (Potrykowska 1989).

*A: 1 – centres of functional urban regions, 2a – zones of the most intensive commuting (over 50% of commuters reference to the professionally non-agricultural active), 2b – external zone (10-50% of commuters), 3 – peripheral zone (less than 10% of commuters).*

*B – percentage of commuters reference to employees of the socialized sector; 1 – commuting zones of the voivodeships centres.*

In the period of transformation commuting radically decreased, which was caused by the economic restructuring, the liquidation of many unprofitable enterprises and mass workforce reductions. In towns the employment redundancy was partly moderated by the increase in other economic sectors, mostly in services (Szymańska 2004). In Toruń as well as in the whole country, the overall period of the system transformation contributed to the enormous changes on the labour market. In a comparatively short period the amount of workplaces fell significantly. In 1992 the supply of employment decreased by 24% in relation to 1988. Such a considerable redundancy caused not only a decrease in commuting but also the unemployment both in the town and in the surroundings.



The spatial variation on the commuting and its changes in the transformation period are presented with the concentration method (Fig. 2A and Fig. 2B.).

On the basis of the data gathered and later analysis it can be concluded that the considerable limitation of a commuting quantity, estimated in Toruń on as much as 40-50%, did not employ its spatial range decrease. However, it influenced the intensity of movements to a greater extent within Toruń's influence zone (Fig. 2). Both in 1988 and 2000 the commuting was characterised by bigger intensity variables, the indicator of the commuting concentration in 1988 was  $\eta=0,908$  and in 2000  $\eta=0,918$ . The analysis concerning the quantity and intensity of the researched phenomena and the distribution of the quantity of commuting according to distances (Namysłowski 1977a; Hołowiecka 2002) confirm the relative increase in the workforce movement intensity from the gminas in the close vicinity to the town.

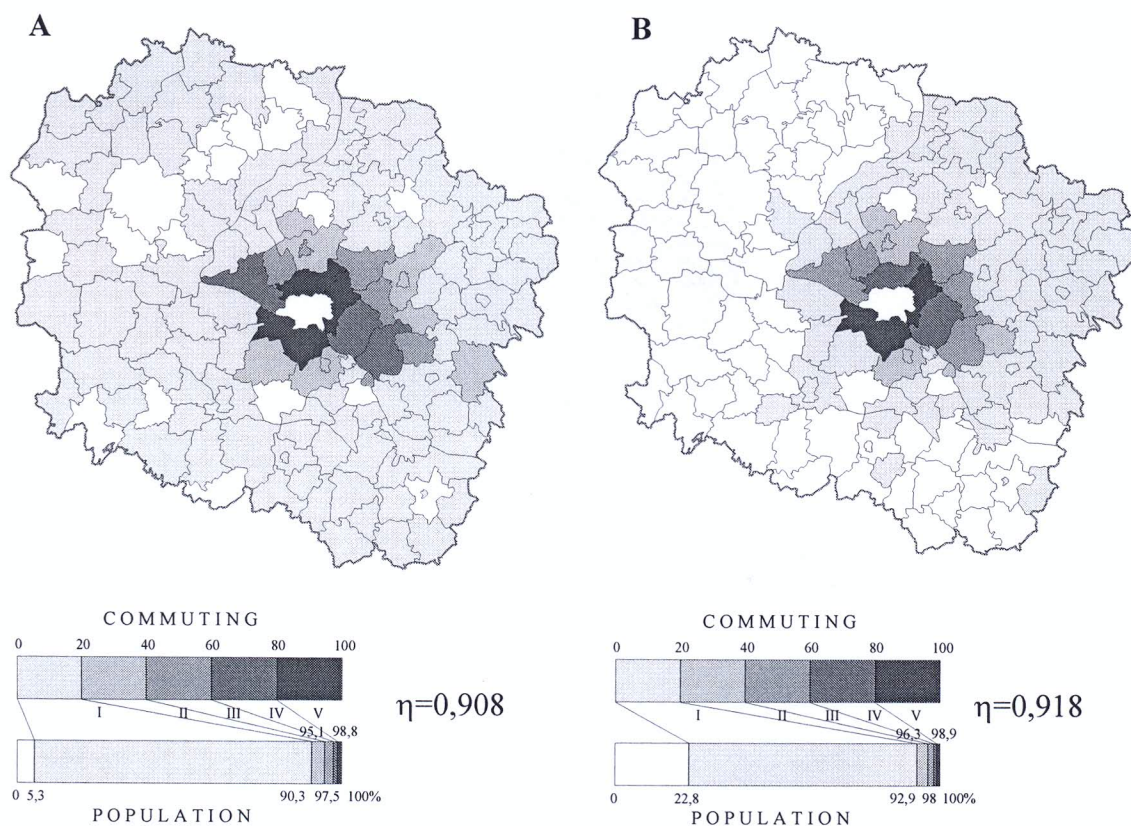


Figure 2. The concentration of commuting to Toruń (commuting in reference to productive age population): A – in 1988; B – in 2000.

The regularities mentioned above are confirmed by the spatial differentiation between the indicator of the commuting intensity in relation to the labour resources in the gminas's scale.



It displays almost unchanged commuting area range with a powerful decrease in the intensity movement in the overall zone of influence (Fig. 3).

It may be concluded from the analyses that in spite of the general decrease in the quantity of commuting their spatial range became only slightly confined. The justification of the phenomena could be found in the general labour market situation. In the conditions of the limited employment supply in the whole region, including its biggest urban centres, there is no change in the position of Toruń to the rival towns or cities, which describes a certain stability of the commuting areas of the regional centres. Additionally, the fixing feature of the length of the commuting range is the high unemployment, much higher in the peripheral urban regions than in their centres (Toruń, Bydgoszcz, Włocławek). The substantial shortage of workplaces and a high unemployment rate might contribute to the stability of the formerly shaped daily commuting zones.

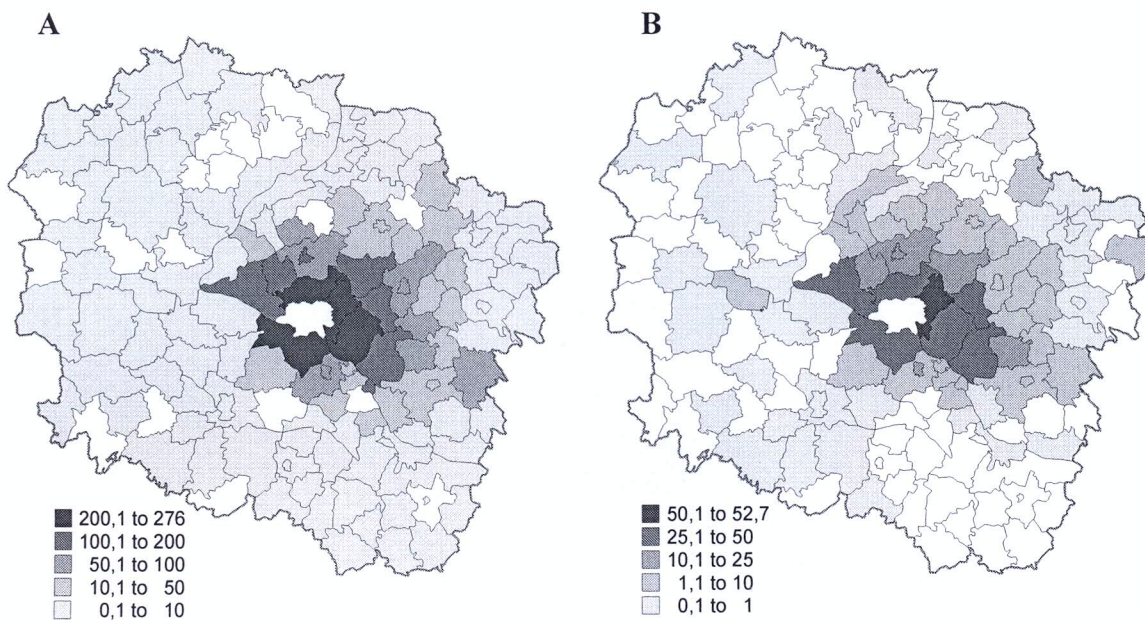


Figure 3. The intensity of commuting to Toruń in relation to potential employment resources: A – in 1988; B – in 2000.

The second crucial element of the daily population migration is the commuting to the secondary schools. The level of the flow was continuously changing between 1960s and 2000, from 1.6 thousand to 7.3 thousand. The increase in the educational function of Toruń in the secondary education respect confirms the ceaseless increase in participation of the youngsters commuting to Toruń in respect to Toruń’s native students, from 18% in school year of 1960/61 to 34.4% in the school year of 1999/2000 respectively. Namysłowski (1977) identified the intense school commuting with the gminas in the closest vicinity of Toruń in



1973. The intensity of school commuting in two gminas slightly exceeded the number of 50 persons per 1000 inhabitants (Fig. 4A). Having the results of the researches of the secondary school commuting from 1973 and nowadays it is possible to stipulate the changes in the intense school commuting, thus estimating the development and structure of the functional urban region of Toruń.

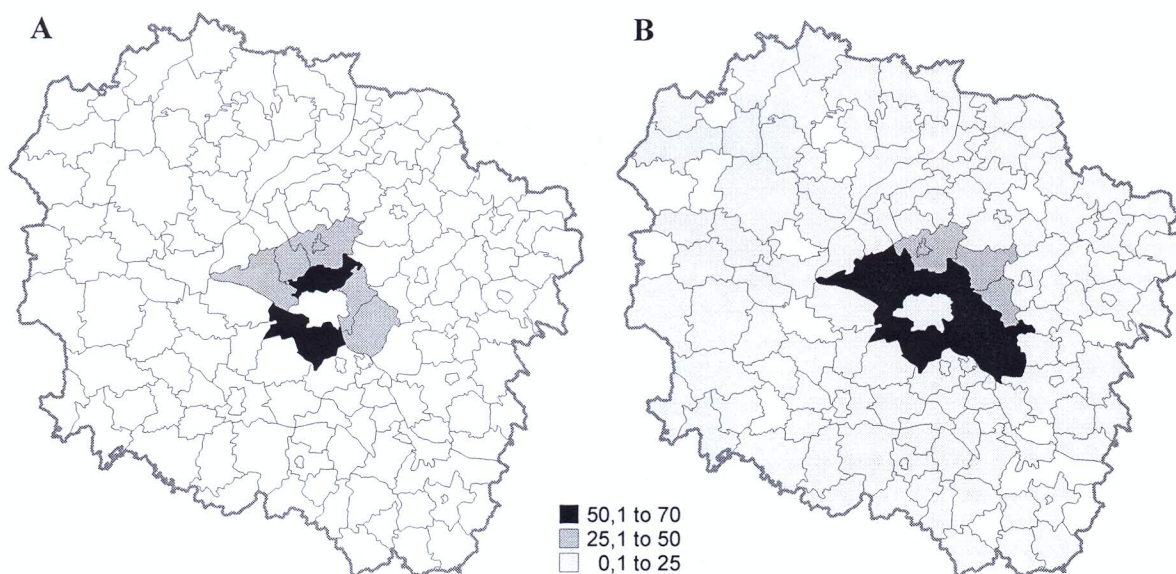


Figure 4. The areas of the high indicator of secondary school commuting to Toruń (per 1000 inhabitants): A – in 1973 (Namysłowski 1977b), B – in 2000.

In the light of the conducted researches it should be stated that in the transformation period the intense commuting area was much broader than the one stated according to the same indicator in the 1970s. Besides the area mentioned by Namysłowski (1977b) it involves a zone of the gminas farther north and east of Toruń simultaneously with the increase in the intensity of movement in the depicted zone since 1973. This regularity is confirmed by the increase of the commuting intensity indicator (calculated in relation to the number of the gmina's population) above the level of 50 persons per 1000 inhabitants in all the gminas bordering Toruń and even a few more lying farther from the town (Fig. 4B). The highest stated increase in the school commuting intensity exceeded 70% and on average it was 45%, which verifies a high spatial concentration of the phenomenon (Fig. 4).

The spatial variability in the intensity of school commuting to Toruń is also proven in the analysis of the students learning in Toruń in the relation to the general quota of the young at a school age, 15-19 (Fig. 5 and Fig. 6) The high indicator obtained in a few gminas, above 50 students per 100 inhabitants at a school age, defines the functional domination zone of Toruń in secondary education (Fig. 6).

The research results having been compared to the investigation results of Szymańska from 1988 to 1996 bring a conclusion that although there was a steady increase in school commuting at the same time there was a slight spatial limitation to the influence of Toruń's educational function. There was though quite a fair variety in the flow intensity in the defined influence zone exposing a considerable increase in commuting from the closest background (Szymańska 1998).

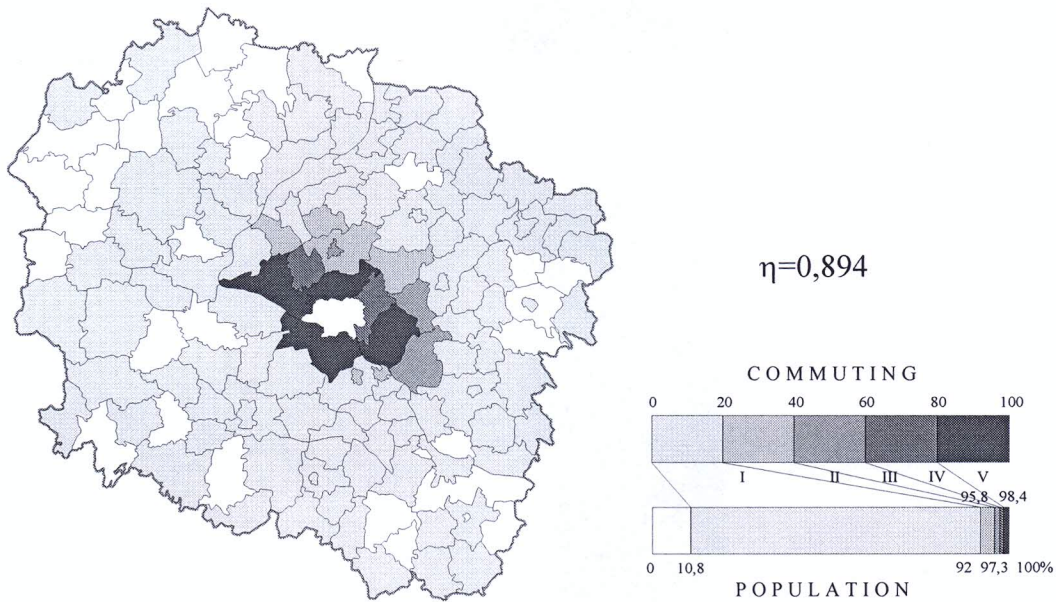


Figure 5. The concentration in commuting to secondary schools in Toruń in 2000. (in relation to the number of the gminas' inhabitants aged 15-19).

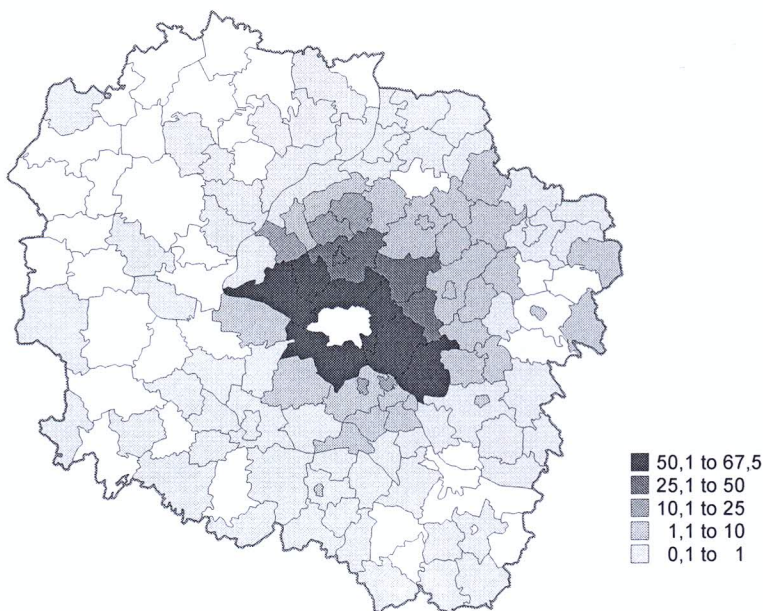




Figure 6. The intensity of secondary schools commuting to Toruń in 2000 (in relation to the number of the gminas' inhabitants aged 15-19).

To sum up the previous observations it is worth noticing that there are several factors influencing the school commuting such as the restructuring of educational system, the increase in the educational offer of Toruń and its adjusting to the competitive economy, and a general trend to upgrade the educational level. Additionally crucial social changes manifested by the rise in aspirations and socio-professional activity of the population had power on the dynamic development of not only secondary but also higher education.

Taking into consideration the amount of school commuting in relation to the whole daily population flow to Toruń in a longer perspective it has to be claimed that its participation increased from 25% to 40%, in 1973 and in 2000 respectively. The increase was the total effect of the development of the educational function of the town and the decrease in the work commuting and it depicted an outstanding role of school commuting in the forming functional urban region of Toruń.

On the basis of the research conducted on the functional urban regions it can be stated that one of the crucial factors involved in their forming is the transport accessibility. Till 1989, daily commuting to urban centres was provided by public transport means, such as PKS (Polish Motor Transport) and PKP (Polish State Railways), which were gradually changing due to the privatisation and high maintenance costs of the national public transport, finally rationalising the communication network along with the number of connections. Financial problems were superimposed with the tremendous decrease in population mobility, which caused the limitation in the communication frequency on the most of the routes and closure of certain ineffective lines. Though in the case of Toruń, as the research results show, it did not influence the decrease in the functional urban region range, it might also appear that a dynamic motorisation development affected its stability.

Multi-aspect research of the range and intensity of the socio-economic influence of the town of Toruń has proven the existence of the functional urban region holding north-eastern part of the Kujawsko-Pomorskie Voivodeship (Fig. 7).

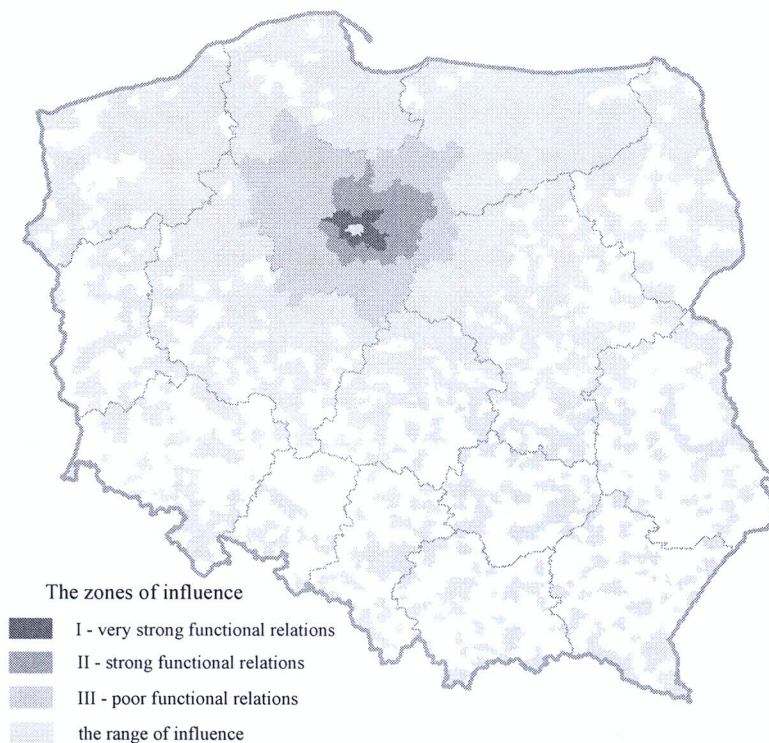


Figure 7. Delimitation of the zones of Toruń's influence (Hołowiecka 2004b).

It appreciably avows the strength of formerly shaped socio-economic and administrative bonds within the borders of latter Toruńskie Voivodeship, existing in 1975-1998.

### Final remarks

Every functional urban region is shaped by the concentration of important functions such as administrative, cultural, political, religious and so on. In the conditions of a planned economy the administrative hierarchy of towns helped in forming a functional hierarchy in such sector of social services as education, healthcare, justice and commerce in a spatial layout. Moreover, the dynamics of the town development, which after the administrative reform of 1975 gained the status of the capital of Toruńskie Voivodeship, depicts the political conditioning as the industry developer. The change in the political system brought a tremendous change in the form of separation of economy and politics.

In the case of Toruń the accumulation of numerous functions: administrative, cultural, educational, formal, religious and other, makes it possible to presume that further urban region changes will lead to an increase in diversification of mutual relations between the town and its background and to a change in a spatial range to a lesser degree.



An essential condition of the local and regional development, which is fundamental in creating an urban region, is the decentralisation of the authority. The introduction of local government, *Samorząd*, allowed to move decisive competences onto lower levels of administration. An adroit and efficient work of the local government undoubtedly determines the local and regional development as well as contributes to forming and magnifying of functional urban regions.

The most contemporary conditioning of the development and transformation of urban regions in relation to the situation before 1989 inseparably involved in a free market is a ground rent. Differences in the land prices, not only in a town space but also in the town-background relationship, force rational management of space and determine its use. In a longer prospect they will influence the deconcentration of industry and other forms of activity involving large space but featuring relatively low economic efficiency. They will result in a gradual selective diffusion of certain forms of activities and a succession of functions of the region. The earliest effects of the ground rent were the concentration of higher level services in the centre of Toruń such as banks, insurance companies, private higher schools and language schools. It was accompanied by the transformation of industrial areas into housing areas, which caused the development of existing industrial plants behind administrative borders of Toruń, especially on the grounds neighbouring the town, having good communication, facilitating varied specialist functions, and an intense development of the suburban residence area.

To sum up, it is worth noticing that in the new socio-economic conditions the issue of functional urban regions has taken a different meaning, both theoretical as well as empirical. From the theoretical point of view it brings a new light on the central place theory, the urban region concept and the development of the settlement system. From the empirical point of view it compromises new possibilities and becomes an ever important instrument of creating a harmonious local and regional development. Although there were significant changes in the functioning conditions of the settlement systems in Poland the research results confirm the stability of the formerly shaped functional urban region of Toruń.

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