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Historical development of the suburban zone of Warsaw

Under present conditions in Poland the assumption that there exists a one, distinct, monocentric, urban agglomeration of the type of a nodal region, the core of which is the city of Warsaw, is fully corroborated¹⁾.

To investigate agglomeration processes it is necessary to use a dynamic approach, i. e. to present development throughout a relatively long period. Only when long trends are investigated can one make an attempt at forming statements of the type of general sentences, expressing "model" regularities, which in studies covering short periods may often be distorted by transient deviations taking place currently²⁾.

In the investigations of this type the researcher is faced with a regularity that the rate of the absolute and relative growth of population is, generally speaking, a synthetic index of the development of a given settlement system, in which the entire socio-economic process is reflected³⁾.

The easiest solution seems therefore to characterize the growth of the Warsaw agglomeration against the background of demographic changes.

An outline of the growth of the Warsaw agglomeration

a) Period up to 1918

The growth of the Warsaw agglomeration was initially associated with a rapid industrial and demographic development of the city after 1870. That period, as is known, was a time of a great boom of the capitalist economy. Warsaw became an important transport junction then.

At the same time, it was an important concentration of people, capable of supplying both skilled and unskilled manpower. It was also an important market. The city was, therefore, a convenient place for the location of industrial and trade establishments⁴⁾. The contemporary demographic growth of Warsaw is illustrated by the following data⁵⁾:

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Population of the city of Warsaw

Year	Population of Warsaw, in thous.	Year	Population of Warsaw, in thous.
1819	100.3	1889	455.8
1860	230.2	1897	601.4
1870	269.2	1913	884.5

A very important role in the industrial development was played by the connection of the Dąbrowa Basin with Warsaw by the "Warsaw-Vienna" railway, as it enabled the industrialists to get cheap fuel (coal).

The contemporary industry, up to 1914, chose locations along that line, and thus certain agglomeration links of Warsaw with its neighbouring settlements started to arise, induced by economic ties. Further new lines, i.e. Warsaw-Białystok-Petersburg (open in 1862) which ran through the present-day district (powiat) of Wołomin, and the "Terespól" line, connecting Warsaw through Mińsk-Siedlce-Brześć with the Russian Empire, (built in 1866-1870), made possible cheap exports. However, the opening of those lines did not induce the formation of an agglomeration (until 1914), as no industries developed along them. The then-founded Ceramic Works in the east were located near a narrow-gauge railway line Warsaw-Radzymin. Those spatial differentiations are clearly visible on S. Misztal's maps⁶⁾.

The second element which stimulated agglomeration processes was housing. Initially, because of transport difficulties (journey duration, low intensity of traffic) people lived either in Warsaw, or in the area directly connected with the city (the present-day town districts of Mókórów, Wola, Praga North). It was only at the turn of the 19th century that - as says J. Cegielski in his detailed study⁷⁾ - conditions for agglomerational residential settlements, the nuclei of the future agglomeration, were established. This happened as an effect of two facts. First of all, the narrow-gauge suburban railways to Jabłonna, Radzymin, Otwock-Karczew, with the terminus in right-bank Warsaw (at Kierbedź bridge), and to Wilanów, Konstancin, Piaseczno, and Góra Kalwaria, with a branch line to Grójec-Nowe miasto and the terminus in left-bank Warsaw (Unii Lubelskiej Square) started to operate. Secondly, with the emergence of the Warsaw core, residential construction was pushed out of the central part to the suburbs.

Certain localities, serviced by the new narrow-gauge railways, were situated to the south and also to the west of Warsaw. These were typical localities where the rich built their country houses (e.g. Konstancin, Swider, Wilanów, Milanówek, partly Brwinów⁸⁾). Those, however, located mainly to the east and partly to the west of the city, were typical residential settlements of the working population, pushed out of the city by high rents (the effect of land rent).

Merely small former boroughs, like Radzymin, Nowy Dwór, Piaseczno, Grodzisk Mazowiecki, or Mszczonów, were lying in the close vicinity of Warsaw. Out of many new industrial or residential centres urban rights were granted to only Żyrardów and Otwock in 1916 and Pruszków in 1919. The process of the emergence of the network of towns and urban settlements in the Warsaw agglomeration is shown in a very picturesque way on the maps included in the already quoted study by A. Wróbel⁹).

It should be remembered that until 1916 Warsaw could develop neither to the north, because in the region of the citadel no building activity was permitted, nor to the south and south-west, because that part of the city was closed by fortified walls. Those facts explain why the area of Warsaw did not increase until 1916, and why the density of its population was very high. Until 1914, right-bank Warsaw was very loosely built-up; its population accounted for only 12 % of the Warsaw's total. When in 1916 the city boundaries were largely extended, Warsaw acquired new development territories, particularly on the left-bank of the Vistula. This, clearly privileged, position of the left-bank area was retained up to 1939, and only after World War II has it slightly changed (see Table No 2).

b) Interwar period

In the interwar period industry developed mainly in the western part, along the railway lines Warsaw-Żyrardów and Warsaw-Sochaczew. However, thanks to well developed suburban transport, the suburban zone started to play a bigger and bigger role as a dormitory area for Warsaw's population. New dormitory settlements developed along the electric narrow-gauge railway, popularly known as "EKD", which connected the central part of Warsaw with Milanówek, Grodzisk and Włochy¹⁰). Even of greater importance was the connection of the western direction of the normal-gauge railway with the eastern sector of the "circle line", and a partial electrification of the sectors from Warsaw to Żyrardów, Otwock, and Mińsk, carried out in the mid-1930s. Thus, this fact positively affected the development of a number of dormitory settlements (at Rembertów, Sulejówek, or Józefów, Otwock, etc.) As the route Wołomin-Tłuszcz was not electrified, to develop residential construction in more distant localities was rather difficult. However, in the frontier zone, residential construction was developing rapidly, especially at Zielonka, Ząbki, Kobylka, and also Wołomin. In the northern direction towards Modlin the settlement of Legionowo grew up very quickly.

If not for the economic crisis of the 1930s, the agglomeration would have reached a far bigger extent by 1939. At the end of the 1920s building sites in the vicinity of Warsaw had become very expensive and the speculation had been quite widespread. Moreover, the parcellation of land was excessive. Then, a number of suburban settlements were built, the connection of which with Warsaw was not too good. Still, many sites were left unused. As T. Toeplitz wrote in 1935: "As a result, in the vicinity of the city of Warsaw, there are so many sites which are for sale that every second father in Warsaw should

Table 2

Demographic and spatial growth of the city of Warsaw^{x/}

Year	City's area in ha ^{xxx/}			Population in thousands			Density of population per s q. km		
	total	left-bank Warsaw	right-bank Warsaw	total	left-bank Warsaw	right-bank Warsaw	total	left-bank Warsaw	right-bank Warsaw
1827	2 154	-	-	131	-	-	6 110	-	-
1914	3 273	2 307	966	855	792	93	27 040	34 330	9 630
1917 ^{xx/}	11 483	7 625	3 858	837	741	96	7 290	9 720	2 490
1938	11 807	7 949	3 858	1 265	1 032	233	10 710	12 980	6 040
1939 ^{xx/}	13 472	9 179	4 293	1 295	1 048	247	9 610a	11 420	5 750
1951 ^{xx/}	41 173	24 755	16 418	816	525	291	1 980	2 120	1 770
1955 ^{xx/}	43 023	24 755	18 268	1 096	741	355	2 550	2 990	1 940
1961	43 047	24 671	18 376	1 151	786	365	2 670	3 190	1 990
1964	43 047	24 671	18 376	1 241	856	385	2 880	3 470	2 100
1970	44 590 ^{xxxx/}	25 480	19 110	1 316	939	377	2 951	3 684	1 972
1975	44 590 ^{xxxx/}	25 480	19 110	1 436	1 020	416	3 220	4 003	2 179

x/ The Statistical Yearbook of the city of Warsaw, 1961, p.8 and 1965, p.7

xx/ After administrative changes in 1916, after administrative changes in 1939, after administrative changes in 1951, after incorporation of Rembertów in 1956

xxx/ The area of the Vistula excluded every time

xxxx/ The Statistical Yearbook of the voivodship Warsaw 1977, the area of the Vistula included.

build up a house on one of the sites and thus make the new settlement not only better populated but also suitably equipped¹¹⁾.

In 1921-31 it became evident for the first time that the inhabitants of the suburban zone were increasing more rapidly than the population of the capital. This was an evidence that the Warsaw agglomeration started to emerge. To corroborate the statement the following data may serve; they are taken from a study by E. Gorczykowska¹²⁾, who published (after A. Wróbel) the following data:

Table No3

Growth of the population in Warsaw and its suburban zone in 1921-31

Specification:	Population in thous.		% of growth
	1921	1931	
the city of Warsaw	937	1,172	25
Warsaw voivodship	1,958	2,392	22
of which: the suburban zone	324	520	60
the remaining area	1,633	1,872	15

A particularly rapid growth of population occurred in the contemporary district of Warsaw, surrounding the city. In 1921-31 its population grew from 181.6 thous. to 325.9 thous. people, i.e. by almost 80 % (cf. J. Cegielski, a typescript). J. Cegielski, who quoted Jaroszyński in this respect, informed that three-fourths of this increase were the inflowing inhabitants, settling mostly at the fringes of the city. Commuting to work in the mid-1930s was estimated at some 120 thous. people.

c) First postwar years (1946-50)

A detailed study concerned with the directions of the distribution of the Warsaw agglomeration population up to 1950 was made by J. Cegielski¹³⁾.

The area under investigation amounted to 3,750 sq. km and included:

1. towns and grounds of the former Warsaw district, and
2. the following towns from the area of the former districts of:
 - a) Pułtusk - town of Serock and commune of Zegrze,
 - b) Radzymin - towns of Radzymin and Wołomin, communes of Radzymin, Kobyłka, Ręczaje (part of),
 - c) Mińsk Mazowiecki - communes of Glinianka (part of) and of Koźbiel (part of),
 - d) Garwolin - communes of Osieck (part of), Sobienie, Jeziory,

- e) Grójec - town of Góra Kalwaria, communes of Czersk, Wągrowur, Kąty, Jazgarzew, Komorniki (part of),
- f) Grodzisk Mazowiecki - towns of Grodzisk Mazowiecki, Błonie, Brwinów, Milanówek, communes of Młochów, Grodzisk, Podkowa Leśna, Helenów, Kaski (part of), Pass, Radzików,
- g) Sochaczew - communes of Głusk, Kampinos, Tulowice, Łazy.

The density of population in that area (Warsaw excluded) was 154 persons per sq. km; in 1950, the non-agricultural population living in the countryside accounted for 68 %, and the Warsaw district even for 80 %.

J. Cegielski applied a new method for the calculation of the population growth along transport lines of normal- and narrow-gauge railways. Because of statistical reasons he made his calculations for communes, which possibly enlarged the area, but the trends were quite evident. The most rapid growth throughout 1921-31 occurred along the line Otwock-Mińsk Mazowiecki; the respective index is 217. Next comes the line Tłuszcz and Radzymin, with the index equalling 195. It should, however, be remembered that the analysis of that direction included only the towns of Radzymin and Wołomin, and the communes of Radzymin, Kobyłka and in part Ręczaje, i.e. the area within an almost direct vicinity of Warsaw.

The belt Warka-Góra Kalwaria was the slowest to develop, it had also very poor transport connections.

After the destruction of Warsaw and the murder of a large part of its inhabitants, part of population settled in the less destroyed suburban centres throughout 1946-50. The most rapid population growth occurred then: first-in the belt Otwock-Mińsk Mazowiecki, secondly- in the belt Tłuszcz-Radzymin.

Between 1921-39 and 1946-50 changes could be witnessed in the distribution of population. As regards the decade 1921-31 the route Tłuszcz-Radzymin became less significant some time around 1950 to the advantage of that between Otwock and Mińsk Mazowiecki, which started to develop rapidly. The share of the route Grodzisk-Żyrardów, if the commune of Okęcie is also included, went up.

d) The period after 1950

In 1951 certain important changes were introduced in the country's administrative division. Part of the Warsaw district (23 sq.km), inhabited by 150 thous. people was incorporated into Warsaw. Out of the remaining part and of certain other districts round Warsaw, four new units were established: in the west - Pruszków, in the north - Nowy Dwór, in the east - Wołomin and Otwock, in the south - Piaseczno. Irrespective of such an extension of Warsaw's area (in addition, Rembertów was incorporated in 1957) the population in a much bigger area (446 sq. km) did not reach the 1939 figure. The number of

commuters to work still exceeded 100 thous. people. This is an evidence that the radius of the agglomeration's influence in the 1950s was longer. Undoubtedly, this phenomenon should be associated with the development of the railway transport: the electrification of the route Wołomin-Tłuszcz in 1952/53¹⁴⁾, total electrification of the route to Skierniewice-Koluszki, electrification of the route to Błoni-Sochaczew, and of the route to Piaseczno-Czachówek, as well as the development of the suburban bus lines. The significance of the bus network is particularly evident in the southern belt, where the bus lines have lately speeded up residential construction in the area from Piaseczno through Zalesie Dolne to Jazgarzew and Głoskoów. It also brought about the location of a new factory at Iwiczna, near Piaseczno. A similar phenomenon occurred also in the north, along the highway Babice-Leszno-Kompinos, where a high frequency of the bus runs (the State Motor Transport) has greatly activated settlement in the fringes of Kampinos Forests.

In the period under discussion demands on the Warsaw labour market for manpower, both qualified and unqualified (construction), were quite great. In Warsaw alone industrial employment in 1946-59 went up from 28.5 thous. people to 168 thous., and in 1964 it reached the level of 213 thous.¹⁵⁾ Warsaw's rate of industrial employment was then the quickest, and the capital became an important centre of metal and electric industries. In 1951-60 employment in the national economy in Warsaw increased from 407 thous. to 616 thous. people, i.e. by over a half. Thus, the growth of employment greatly exceeded the growth of population (by 40 %) in the period 1951-60. A further increase to 734 thous. took place up to 1964. It should also be remembered that Warsaw - as a centre of political and economic decisions - is particularly attractive and offers big opportunities for social advance, and - as a centre of services of a higher rank - it is the seat of scientific, educational, cultural and health service institutions, as well as of entertainment¹⁷⁾.

In such a situation shortage of dwellings in Warsaw as well as registration restrictions, aimed at curbing the inflows of migrants to Warsaw¹⁸⁾, caused that initially commuting to work in Warsaw rapidly increased; subsequently, however, it was the population of Warsaw's gravitation area that grew up. The 1960 Census makes it possible to analyse changes in the population numbers throughout 1950-60. However, because of statistical reasons, data are comparable for former districts and excluded municipalities only. That is why the following Table contains data from the districts encircling Warsaw, though - as it appears from the diagrams - the range of influence goes much farther, along the transport lines, especially over such districts as Grodzisk Mazowiecki in the west and Mińsk Mazowiecki in the east.

Table 4

The growth of the population of the Warsaw agglomeration in 1950-60

Specification	Population in (in thous.)		Growth of popu- lation in 1950=100	Share of the separate parts of the agglome- ration in		Percentage of population earn- ing its liveli- hood outside agriculture in 1960
	1950	1960		1950	1960	
City of Warsaw	822	1,136.0	138.2	64.5	65.6	98.5
External zones of the agglome- ration	451.2	594.5	131.8	35.5	34.4	75.7
of which:						
Distr. of Nowy Dwór	66.1	90.4	134.8	5.2	5.1	73.6
" " Otwock	61.9	81.2	131.2	4.8	4.8	69.3
Town of Otwock	27.7	36.3	131.4	2.2	2.1	96.3
Distr. of Piaseczno	67.1	83.7	125.1	5.2	4.8	73.7
" " Pruszków	89.8	122.4	137.6	7.7	7.8	79.6
Town of Pruszków	30.8	37.0	119.8	2.4	2.1	98.5
Distr. of Wołomin	107.8	143.5	133.5	8.4	8.2	68.2
Agglomeration of Warsaw, total	1273.2	1730.5	136.1	100.0	100.0	90.7
Voivodship of Warsaw (the city of Warsaw exclu- ded)	2032.3	2314.1	113.9	x	x	47.0

Data in Table 4 are an evidence that the rate of population growth, even in the area of the Warsaw agglomeration was very high with the only exception of the southern belt, i.e. the district of Piaseczno. The more distant parts of this district, having no railway connection with Warsaw, are stagnant, whereas in the parts lying near Warsaw the transport system was improved around 1960 and therefore changes have occurred after that year. Urban settlements which were well connected with Warsaw developed rapidly. For example, in the decade of 1950-60 the population of the district of Wołomin, lying at the Warsaw-Tłuszcz route, which was electrified in 1953-54, increased by almost 50 %, i.e. on the average by 5 % per year. Out of the sub-Warsaw districts the towns and settlements in the Pruszków district, with their own industrial base and convenient transport to Warsaw, lived through a period of a very rapid population growth; slightly less was the increase in the rural of the Nowy Dwór district. More detailed data are included in Table 5.

Table 5

The share of districts in the population of the external zone ²⁰⁾

Specification	Share of separate districts in the population of the external zone of the Warsaw agglomeration	
	1950	1960
Population of the external zone, total	100.0	100.0
District of Nowy Dwór	14.4	14.7
District and town of Otwock	19.5	19.4
District of Piaseczno	14.6	13.8
District and town of Pruszków	28.2	28.3
District of Wołomin	23.4	23.7

In the period of 1950-60 there was no bigger change in the share of population, as only the share of the district of Piaseczno, where the growth of population was the least, became slightly less.

The agglomeration of Warsaw is a typical nodal region with one very effective focus, the city of Warsaw. Derwent Whittlesey believes that the typical feature of a nodal region is its homogeneity resulting from the internal structure or organization. The essential elements of this structure are: a focus (or focuses) and the area which surrounds it (them), connected with the focus by the circulation lines, e.g. a hinterland of a big city. At the boundary of those regions the links with their own focus either disappear or become weaker and are attracted by another focus²¹⁾.

Those links with the external zone of the agglomeration, based on transport lines, are evident, even if the legal status of the settlements in the zone is taken into consideration. Localities, lying along convenient transport lines, develop quickly; they are granted the city charter, or the rights of an urban settlement, earlier than other places. Many of them received the charter as late as the 1950s (Kobyłka, Marki, Żąbki, Tłuszcz and Zielonka in the district of Wołomin).

Part of the near settlements of the urban type were incorporated into Warsaw (e.g. Włochy) in 1951, or in 1956 (e.g. Rembertów). Anyhow, as discovered by F. Gliszczynski²²⁾, who investigated residential construction in the region of Warsaw, out of 29 towns and settlements only small ones, situated on the fringes of the city (Serock, Zakroczym), did not have railway connections. This can also be seen on the map presenting the administrative division, which shows the formal range of administrative influence of the city of Warsaw.

Informal influence extends more widely; it is also associated with the belt

along the transport lines, as can be seen on Map 2 presenting the percentages of the population earning their livelihood in agriculture and living in towns, settlements and districts, according to data of the General Census of 1960. It has been assumed that the communes with over 50 % of agricultural population are not yet drawn within the range of direct influence of the Warsaw agglomeration. The growth of agglomeration and changes in the professional structure of the population, connected with this phenomenon, are clearly associated with and efficient transport system (in 1960 it was mainly the railway). The agglomeration began then to develop westwards - to Żyrardów, and northwards - to Nowy Dwór; after the electrification of the Warsaw-Tłuszcz route, the line Wołomin-Tłuszcz-Białystok became more active. The influence of the route Mińsk-Siedlce and Otwock-Pilawa spread as far as Mrozy, and only southwards no direct influence could be seen, the line to Warka having not activated the area along the railway line. A similar phenomenon took place in the direction to Błonie-Sochaczew.

Map 3 presents the average density per sq. km. It shows that the rate of changes in the population professional structure of the emerging part of the agglomeration is more rapid than that of the further concentrations of the population, induced by them²⁴). Moreover, population concentrated in a smaller number of localities, situated more conveniently from the viewpoint mainly of transport connections and building sites for residential construction. With the exception of old settlements only territories along the railway lines were more densely populated.

Map 4, presenting commuting to work in Warsaw, fully corroborates the focal function of Warsaw in the nodal region. Moreover, it makes also evident that the districts of Prusków, Nowy Dwór and Otwock closely depend on the railway lines and that the size of commuting from those districts, as well as from Mińsk Mazowiecki and the districts bordering with the voivodship of Łódź (Skieniewice, Łowicz) as also big.

The 1960 - 1970 and also 1971-1975 periods were characterized by a slower rate of the population growth, both in the capital as in its suburban zone. This phenomenon was caused by a general decline in the rate of the population growth in Poland, i.e. by the lower natural increase. In the 1960s, moreover, the limited increase of the urban population was also associated with decreased migration from the rural to the urban area due to difficulties encountered by the towns in absorbing the migrants because of the "urbanization gap", i.e. an inability to provide enough dwellings. Therefore, commuting to work developed on a big scale and often acquired a "pathological" character, as it took too much time and energy. The phenomenon occurred also in the Warsaw agglomeration²⁵). In the 1970s the tendency for the natural growth to remain at the same level still prevailed. However, migrations from the rural area changed their quality not only in the country as a whole, but also in the Warsaw agglomeration. Migrations continue to take place on a big scale. Irrespective of the formal registration restrictions in Warsaw and certain suburban settlements, the credit balance of migration movements increa-

sed in Warsaw from 12.5-14.0 thous in 1965-1970 to 17.5-21.3 thous. per annum in 1971-1976²⁶). In 1971-1976 the balance of migration was almost 20 thous. per annum and made the foundation of the total increase of Warsaw's population.

A rapid population growth was also obtained by certain towns in the external zone of the agglomeration, namely: Ursus with its expanding tractor production (included into Warsaw in 1977), Nowy Dwór Mazowiecki, Żąbki, Piaseczno with its electronic industry, Zielonka, and after 1971 also Wołomin and Legionowo (development of residential construction). It should however be remembered that commuting to work in Warsaw and certain other agglomeration towns in 1960-1975 was still on the increase. In the early 1960s some 150 thous. people commuted to Warsaw; now, the figure is 170 thous., of which 150 thous. came from the metropolitan voivodship²⁷). This fact has been associated with a steady expansion of the labour market. In 1975, for example, employment in Warsaw amounted to 814 thous. people (the population total was 1,436 thous.). The relation employment: population was therefore at the level of 57 % of the population total. At the same time, some 50 % of professionally active people were women²⁸). This caused a heightening tension of the labour market and it was necessary to utilize manpower reserves, especially of the male population living in the surrounding area. A characteristic phenomenon of the "indirect growth of the agglomeration range" took place also. The inhabitants of localities conveniently situated (e.g. Pruszków, Wołomin, etc.) commuted to work in Warsaw, which offered a wide selection of better jobs, and people from localities less conveniently connected with Warsaw commuted to the former. Commuting from Warsaw to sub-Warsaw localities was much less developed.

The following Table 6 makes it possible to compare demographic growth in 1950-1960 with that in the subsequent decade.

Table 6

Development of population in the Warsaw agglomeration in 1960-1970²⁹)

Specification	Population in thousands		Growth of population in 1960=100	Share of the separate parts of the agglomeration in 1960-1970		Percentage of population earning its living outside agriculture in 1970
	1960	1970		1960	1970	
	Warsaw, agglomeration, total	1,735.7		1,996.6	115.0	
City of Warsaw	1,139.2	1,308.1	114.8	65.6	65.5	98.8
External zone of the agglomeration, total	596.5	688.5	115.4	34.4	34.5	82.4

Distr.of Nowy Dwór	90.4	107.7	119.1	5.2	5.4	80.7
Distr.of Wołomin	143.9	166.1	115.4	8.3	8.3	78.4
Town of Otwock	36.3	39.7	109.4	2.1	2.0	98.0
Distr.of Otwock	81.7	87.9	107.6	4.8	4.4	77.4
Distr.of Piaseczno	83.8	98.8	117.9	4.8	4.9	79.8
Town of Pruszków	38.0	43.0	113.2	2.2	2.1	98.2
Distr.of Pruszków	122.4	145.3	118.7	7.0	7.3	83.9

A comparison of Table 4 and 6 reveals that demographic relations between Warsaw and its external zone were, in principle, unchanged throughout the period 1950-1960-1970. About two-thirds of the population still inhabited the centre of the Warsaw agglomeration, and one-third - the external zone. No important shifts could be observed in the shares of the population inhabiting the particular parts of the agglomeration, the only difference having been a slower rate of the demographic growth in the Otwock belt. Non-agricultural population steadily increased. In 1960 it accounted for 75 % of the total population, and in 1970 - 80 %. In all the districts the percentage exceeded 75 % of the total population. This is an evidence that the "demographic urbanization" was already greatly advanced in that area. The share of non-agricultural population in the formally rural areas was as follows: the less urbanized in that sense were the villages of the districts of Wołomin and Otwock (56 - 58 % of the non-agricultural population), a higher rate was in the districts of Piaseczno, Pruszków (68 %) and Nowy Dwór Mazowiecki (70 %). Of course, big spatial differences took place there; were associated with transport connections, especially railway and bus lines, as well as with the relation to the local places of non-agricultural work. I have discussed this subject in greater detail in my studies concerned with Poland's agglomerations and the Warsaw agglomeration. These spatial differences are also evident in the demographic growth of particular rural localities or their complexes. And thus in 1960-1970 population in the rural area of the districts under discussion increased from 271 thous. to 304 thous. people, i.e. by 33 thous. The rate of growth for the rural area amounted altogether to 112, with 1960 taken as 100. On the other hand, my studies for the period 1960-1966 have revealed that a relatively high rate of demographic growth occurred in the following communes situated in the district of Piaseczno: Chylce, Jazgarzew, Zalesie Górne, where the index increased by 22-25 % and Raszyn, where the percentage was even 54. In the district of Pruszków: Izabelin and Nowa Wieś accounted for 22 - 24 % of the growth, and in the district of Wołomin - Ostrówek 27 %, Ręczaje Nowe 43 %, Duczki 50 %. In the district of Nowy Dwór the communes with a rapid rate of growth were: Łomianki 33 % and Nieporet 46 %. However, in the district of Otwock there were no communes characterized by such growth (30). Map 5 if a further disaggregation of the data is made and research is carried out on the scale of a village, even more evident "urbanization belts" will appear along the transport lines, as has been shown in a case

study of the district of Wołomin, made by myself³¹). Maps 6 o. 7

For the period of 1970-1975 changes could be referred to the area of the present Warsaw metropolitan voivodship, established in 1975. I am fully aware that the range of the Warsaw agglomeration goes beyond the area of the voivodship, especially in the directions to the east and west; however, to delimit that range would imply interdisciplinary painstaking studies. In my paper, which is an outline of the historical development of the Warsaw suburban zone, I would only like to mark certain phenomena, mainly in the field of the distribution of the population, and certain settlement problems associated with the former problem.

Table 7

Demographic growth in the metropolitan voivodship of Warsaw in 1970-1975³²)

Specification	Population in the years				Changes in the numbers of population	
	1970		1975		in thous. 1970=100	
	in thous.	%	in thous.	%		
Metropolitan voivodship of Warsaw, total	1,998,5	100.0	2,154,7	100.0	+156.2	107.8
Towns	1,732.9	86.7	1,890.7	87.7	+157.8	109.1
of which: the city of Warsaw	1,315,7	65.8	1,436.1	66.7	+120.4	109.1
villages	265.6	13.3	264.0	12.2	- 1.6	99.4

The table shows that the capital of Warsaw, even without Ursus, which was incorporated later on still accounted for the two-thirds of the voivodship population and its population showed strong tendencies to develop rapidly. This is undoubtedly associated with the increase of the positive balance of migrations, discussed above, as well as with a greater number of dwellings built in Warsaw, which made it possible to absorb the new population. Towns in the external zone grew also which was again associated with the expansion of residential socialized construction, in particular co-operative. In 1976, for example, there were over 6 thous. co-operative dwellings in Ursus, ca 4.8 in Pruszków, ca 2.7 thous. in Legionowo, and the same number in Otwock, Nowy Dwór Mazowiecki, Wołomin and Grodzisk had ca. 1.5-1.6 thous dwellings each, in Piaseczno, Błonie, Piastów the figure was ca 1.3-1.1 thous. dwellings each. These were rather new phenomena for the towns in the zone, and the co-operative form of construction started to develop in the late 1960s and 1970s. It contributed to an expansion of the towns of the external zone and induced new qualities to develop as far as the living conditions of the population were concerned. The newly built dwellings were relatively well equipped

(sanitation, bathrooms, tap water, W.C., central heating) and this made it necessary to redevelop the technical and social infrastructure there. Thus, they were made more attractive not only as places of work, but also as places of residence. In the 1980s this process will be even more widespread because of the in-coming shortage of building sites in Warsaw. I believe that this will induce certain radical changes which will eliminate the inadequate utilization of a majority of towns in the suburban zone of Warsaw and bring about correct proportions in the distribution of the population living in the city of Warsaw, which is the core of the bordering zone.

However, a new fact has emerged against this background. It refers to the population inhabiting the rural area. For quite a long time, and for the first time in the postwar period, the population of the rural area living in the suburban zone of Warsaw has been on the decline, if approached as a whole. This is quite a striking phenomenon, and should undoubtedly be investigated in detail in spatial research. As I have already said when I referred to the studies of the rural areas of the Warsaw agglomeration in the 1950s and 1960s, evident differences could be seen in the concentration of the population in the rural area. It seems that nowadays these tendencies in the aggregates which are too big (the communes) have been blurred. Certain signals can also be found in the commune statistics. Out of 32 communes, for example, population in 10 increased slightly, whereas in 22 it slightly decreased. Relatively bigger increases have been noted in 3 communes: Lesznowola (600 people), Łomianki (400), Góra Kalwaria (300). In comparison with past years those increases are insignificant. Map 8 undoubtedly, research undertaken on the scale of the communes or census areas, adequately grouped, would yield a clearer picture. But even now, it can generally be said that the tendencies towards an intensive settlement of inflowing population has become stagnant in the rural area of the external zone. This phenomenon has also its effect upon construction; in 1976, 1355 dwellings (i.e. ca 5 per 1000 inhabitants) were completed, out of which ca 1000 was built out of private funds. It seems that individual construction has been less active than previously. I believe that this is associated with the completion of a certain stage in agglomeration processes in the zone, a stage of spontaneous development of construction by private people, often started without permission and characterized by relatively low technical and spatial standards³³). Buildings constructed now are up to a much higher standard, but at the same time much more expensive. The construction regulations have in the meantime introduced much higher requirements in this respect. As, however, the technical infrastructure in the countryside is inadequate, it is a very difficult task to build series of detached houses. We are, therefore, at a transitory stage now; in the early 1980s the population pressure to build detached houses will be strong, especially on the part of Warsaw inhabitants. And then, we will enter a new stage when conveniently situated building sites in the external zone will be utilized for that purpose. Undoubtedly, this will induce a new growth of population in the rural areas, which will undergo a process of urban development, their economic development will also change. It is therefore worth while to investigate

very thoroughly the problem where in future to locate such settlements in order to provide good living conditions for the new inhabitants, and at the same time to improve the living conditions of the former inhabitants by constructing the necessary infrastructure. Moreover, one should not forget that those areas must also fulfill their productive functions, especially as far as intensive agriculture and market gardening, as well as recreation functions for urban population are concerned. But this is a subject discussed in other papers.

Footnotes

- 1) Cf. A. Wróbel, *Województwo Warszawskie. Studium ekonomicznej struktury regionalnej* (The voivodship of Warsaw, A study of the economic regional structure), Warsaw 1960; and also A. Wróbel, *Pojęcie regionu ekonomicznego a teoria geografii* (The notion of an economic region and the theory of geography, PWN, Warsaw 1965. The last study is concerned with the notion of a region in detail.
- 2) Cf. i.a. W. Kula, *Problemy i metody historii gospodarczej* (Problems and methods of economic history), PWN, Warsaw 1965.
- 3) The following Polish monographs may serve to illustrate the growth of separate towns: A. Ginsbert, *Łódź*; J. Ziółkowski, *Sosnowiec*; A. Stasiak, *Rozwój demograficzny m. Wrocławia* (The demographic growth of the city of Wrocław in the XIX century) in: "Sobótka" No 2/58; A. Stasiak, *Miasto Królewska Huta* (The city of Królewska Huta); J. Cegielski, *Ludność, mieszkanie i ich zaludnienie w Warszawie od połowy XIX w.* (Population, dwellings and density of their inhabitants in Warsaw since the mid-19th century) in "Prace IBM" No 28/1960.
- 4) S. Misztal, *Warszawski Okręg Przemysłowy* (The Warsaw Industrial District), Warsaw 1962.
- 5) The Statistical Yearbook of the City of Warsaw 1961, p. 9.
- 6) A. Wróbel (1960) op. cit. (The voivodship of Warsaw).
- 7) J. Cegielski, *Rozwój stosunków mieszkaniowych w Warszawie w okresie kapitalizmu 1864-1939* (The development of housing conditions in Warsaw in the capitalist period 1864-1939), Arkady, Warsaw 1968.
- 8) J. Smogorzewski, *Brwinów, Milanówek i Podkowa Leśna jako podmiejskie osiedla-satelity Warszawy* (Brwinów, Milanówek and Podkowa Leśna as suburban satellite settlements of Warsaw), IUA, vol. 101, Warsaw 1965.
- 9) A. Wróbel (1960) op. cit. (The Voivodship of Warsaw), maps 2-6.

- 10) J. Smogorzewski, op. cit.
- 11) Quoted after J. Cegielski.
- 12) Górczykowska, Powstanie i rozwój strefy podmiejskiej Warszawy (Formation and growth of the suburban zone of Warsaw), an M.A. thesis in type-script at The Institute of Geography of the University of Warsaw 1955). The author included in the suburban zone the entire district of Warsaw, almost entire district of Radzymin, a larger part of the district of Błonie, 3 communes of the district of Mińsk, including the town itself, and 3 communes of the district of Grójec.
- 13) J. Cegielski, Ludność i stosunki mieszkaniowe na obszarze Warszawskiego Zespołu Miejskiego (Population and housing conditions in the Warsaw Urban Complex), IBM, series E., vol. 3/1952.
- 14) The effects of electrification of railway transport in the district of Wołomin are extremely clearly visible. Cf. A. Stasiak, Powiat Wołomiński jako fragment aglomeracji warszawskiej (The district of Wołomin as a fragment of the Warsaw agglomeration), Architektura No 1/1965.
- 15) T. Mrzygód, Polityka rozmieszczenia przemysłu w 1946-1980 (The policy of industry distribution in Poland in 1946-1980), Warsaw 1962, p. 54; The Statistical Yearbook of Warsaw 1965, p. 54.
- 16) The Statistical Yearbook of Warsaw 1961, p. 130; *ibid.* 1965, p. 54.
- 17) M. Kaczorowski, Perspektywy Wielkiej Warszawy (Perspectives for Greater Warsaw), Prace IBM no 28, Warsaw 1960; and also: Rozmieszczenie ośrodków naukowych w Polsce (The distribution of scientific centres in Poland), material from the Seminar at Jabłonna. Biuletyn KPZK, No 38-39, Warsaw 1966. The discussed problem is thoroughly analysed by J. Malanowski.
- 18) Problems of population migrations to Warsaw are discussed in a collective study by W. Mirowski, M. Rymkiewicz, J. Zajac, Struktura ruchu migracyjnego w Warszawie (The structure of migration movements in Warsaw). It appears that migration increment in 1951-1953 amounted to ca 30 thous. people per year, at present the figure is ca 14 thous. This subject is discussed by W. Mirowski.
- 19) General Census of 6.12.1960. Preliminary results, 2nd edition, The voivodship and the city of Warsaw, Warsaw GUS 1962,
- 20) *ibidem.*
- 21) Derwent Whittlesey, The Regional Concept and the Regional Method, Chapter II.

- 22) F. Gliszczynski, Ludność, mieszkanie i budownictwo mieszkaniowe w rejonie warszawskim (Population, dwellings and residential construction in the Warsaw region), Biuletyn KPZK, No 5/1963.
- 23) Maps 1, 2, 3, 4 were made by H. Rucz-Pruszyńska. Cf. her paper: Problemy aglomeracji woj. warszawskiego (Problems of the agglomeration of the Warsaw voivodship), Architektura, No 1/1965.
- 24) A similar opinion was held by K. Lier in his study: Region metropolitarny Warszawy. Próby delimitacji. (The metropolitan region of Warsaw. Attempts at delimitation).
- 25) J. Cegielski, Problemy dojazdów do pracy. Próba syntezy (Commuting to work problems. An attempt at a synthesis), IKS, PWN, Warsaw 1977.
- 26) Demographic Yearbooks of the Central Statistical Office, 1967/68, 1971, 1973, 1975. The Statistical Yearbook of the Metropolitan Voivodship (WSW) 1977, p. 68.
- 27) W. Karbownik, Perspektywiczny rozwój strefy podmiejskiej Warszawy (A perspective development of the Warsaw suburban zone), a typescript Warsaw 1978.
- 28) The Statistical Yearbook of the Metropolitan Voivodship, 1977, pp. 36-7, 80.
- 29) Ludność (Population); Zasoby mieszkaniowe (Housing resources); Indywidualne gospodarstwa rolne (Private farms). Poland, NSP 1970 Preliminary results, GUS, Warsaw 1971, Part II, table 1.
- 30) A. Stasiak, Rozwój aglomeracji miejskich w Polsce (Development of urban agglomerations in Poland), KPZK, Warsaw 1973.
- 31) A. Stasiak, Urbanizacja strefy podmiejskiej na przykładzie powiatu wołomińskiego (Urban development of a suburban zone. A case study of the district of Wołomin) in: Warszawa, socjologiczne zagadnienia stolicy i aglomeracji (Warsaw, sociological problems of the capital and the agglomeration), Książka i Wiedza 1969, S. Nowakowski (ed).
- 32) The Statistical Yearbook of the Metropolitan Voivodship, 1977, pp. 36-37.
- 33) J. Cegielski, Dzikie budownictwo mieszkaniowe na obszarze strefy podmiejskiej Warszawy w latach 1959-1960 (Unauthorized residential construction in the Warsaw suburban zone in 1959-1960), Biuletyn PAN - KPZK No 5/24/1963; J. Minorski, Architektura samorządna (Unauthorized architecture), Architektura No 4/1963; J. Minorski, Urbanistyka samorządna (Unauthorized urban development), Architektura No 9/1963.



Fig.1. Administrative division of the Warsaw region per 30 June 1963.
 1. towns, 2. urban settlements, 3. boundaries of voivodships,
 4. boundaries of powiats, 5. boundaries of the region

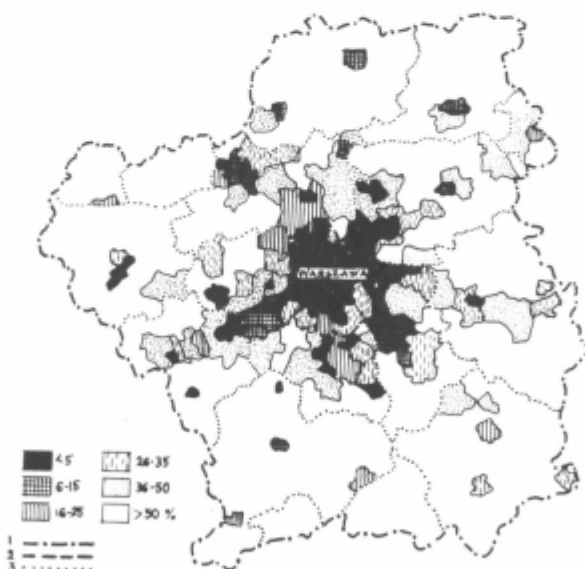


Fig.2. Percentages of the agricultural population of the Warsaw region in 1960.
 1. boundaries of the region, 2. boundaries of Warsaw, 3. boundaries of powiats

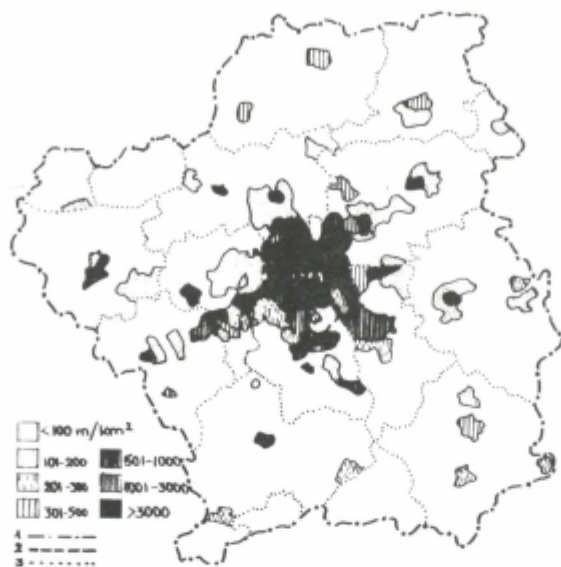


Fig. 3 Density of population after the 1960 General Census. 1. boundaries of the region, 2. boundaries of Warsaw, 3. boundaries of powiats



Fig. 4 Commuting to work in Warsaw in 1958/1959. 1. the wight of the arrow is proportionate the number of commuters from a give locality, 2. boundaries of the region, 3. boundaries of Warsaw, 4. boundaries of powiats

Source: A. Stasiak, Problem aglomeracji miejskich w Polsce, in: S. Nowakowski /ed/, Socjologiczne problemy miasta polskiego, PWN, Warszawa 1964, pp.167,173, 181-182, maps No 1,2,3,4



Fig.5. Percentage of the increase of the number of population in the Warsaw agglomeration in 1960-1966.

1. boundaries of the agglomeration, 2. boundaries of Warsaw,
3. boundaries of powiats, 4. boundaries of towns and settlements,
5. boundaries of villages districts /"gromadas"/

Source: A. Stasiak, *Rozwój aglomeracji miejskich w Polsce*, Fig.9, p.32

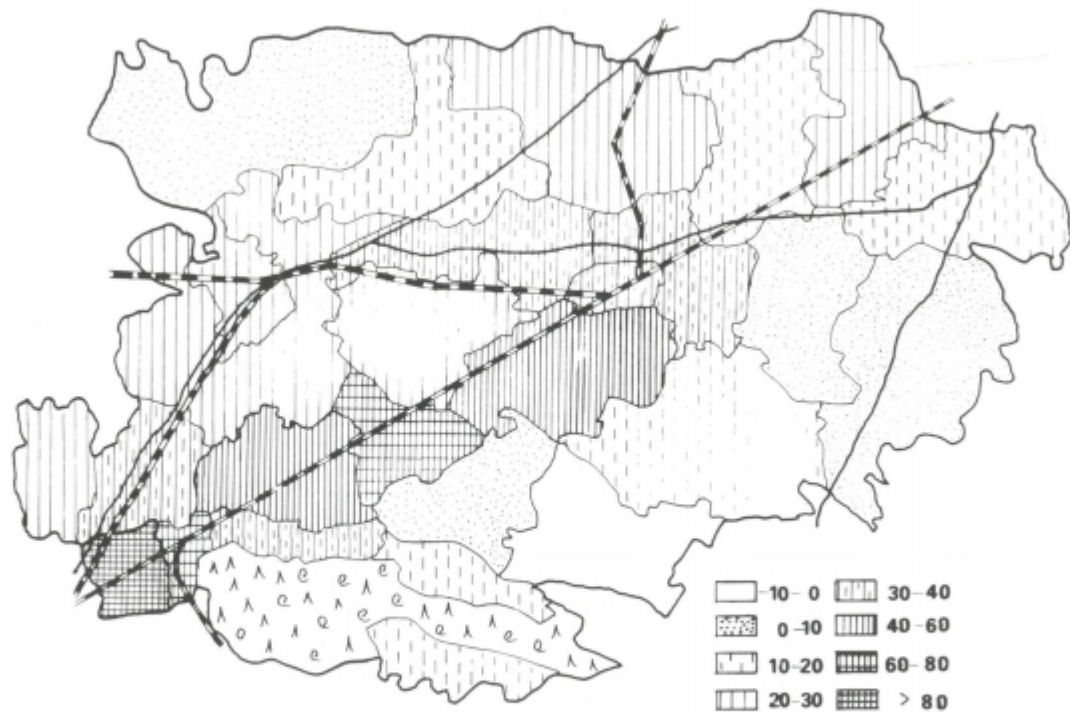


Fig.6. Percentage of the increase of the number of population in the powiat of Wołomin in 1950-1960.

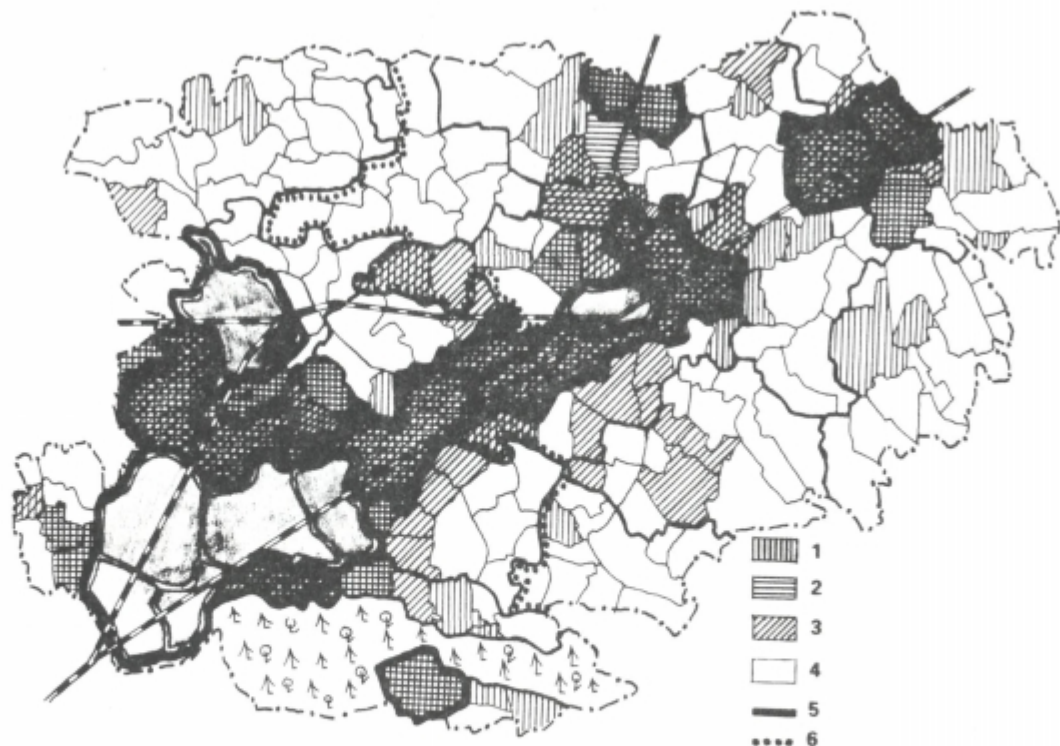


Fig.7. The delineated urbanized zone of the powiat of Wołomin.

1. density of population, over 100 inhabitants/km², 2. non-agricultural population, over 50 %, 3. increase in the number of population in 1950-1960, over 25 %, 4. towns, 5. the urbanized zone, 6. the WZM zone

Source: A.Stasiak, Urbanizacja strefy podmiejskiej, in: S. Nowakowski /ed/, Warszawa Socjologiczne problemy stolicy i aglomeracji, Książka i Wiedza 1969, pp.319-338 /maps No 6,7/

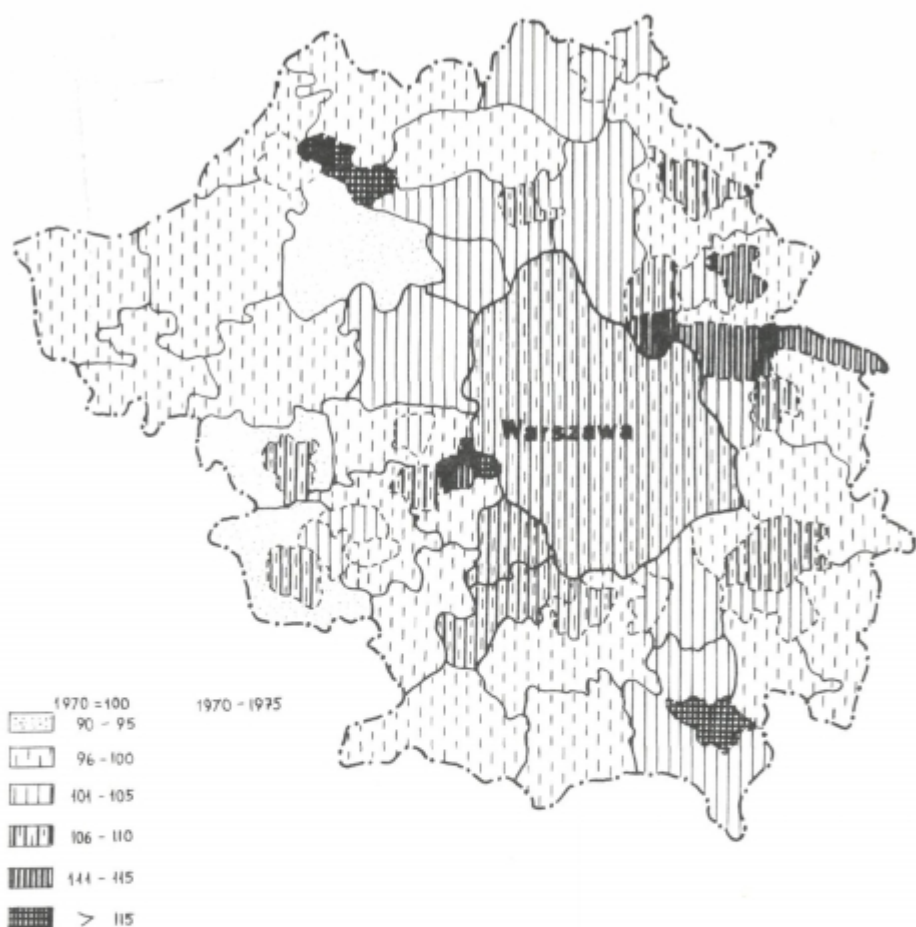


Fig.8. Increase in the number of population in 1970-1975, index
 Source: Rocznik Statystyczny Woj. St. Warszawskiego /Statistical Yearbook of the Warsaw voivodship /1977, pp.36-37

ZGODOVINSKI RAZVOJ OBMEŠTJA VARŠAVE

Rast varšavske aglomeracije je bila sprva povezana s hitrim industrijskim in demografskim razvojem mesta po l. 1870. To je bilo obdobje hitrega razvoja kapitalističnega gospodarstva, Varšava pa je postala pomembno prometno križišče.

Do l. 1916 se Varšava ni mogla širiti proti severu, ker je bila gradnja znotraj trdnjave prepovedana, niti proti jugu in jugovzhodu; s teh strani je mesto zapiral obrambni zid. Zaradi tega je bila gostota mestnega prebivalstva zelo visoka, saj je bilo mesto dolgo časa omejeno na enak prostor. Zahvaljujoč dobro razvitemu obmestnemu prometu je pomen obmestja Varšave kot spalnega območja postajal vedno večji. Koncem dvajsetih let je bilo v bližini Varšave možno dobiti gradbena zemljišča po zelo nizki ceni. Cvetela je špekulacija z zemljišči, le-ta pa so se razprodajala po zelo majhnih parcelah. Zgrajena so bila številna obmestna naselja, ki so bila z Varšavo prometno slabo povezana.

V razdobju 1921-31 je postalo prvič očitno, da je prebivalstvo v obmestju naraščalo hitreje kot pa v prestolnici. Začela je nastajati varšavska aglomeracija.

L. 1951 je prišlo do pomembne spremembe administrativnih meja. Del varšavskega okrožja (230 km² s 150 000 prebivalci) je bil vključen v mesto. Mesto se je hitro industrializiralo: l. 1946 je bilo 28 500 industrijskih delavcev, l. 1964 pa že 213 000. Varšava je v tem času doživela največjo stopnjo industrijskega razvoja, tako da je postala pomembno središče kovinske in elektrotehnične industrije. Rast celokupnega zaposlovanja v razdobju 1951-60 je daleč preseгла rast prebivalstva (za 40 %). Poleg tega je pomembno, da je Varšava kot prestolnica privlačna za številne dejavnosti in nudi široke možnosti za socialno napredovanje. Pomanjkanje stanovanj in administrativne omejitve za doseljevanje v mesto je povzročilo hitro naraščanje števila dnevnih migrantov. Na drugi strani je prišlo do povečevanja števila prebivalstva na gravitacijskem območju mesta.

V razdobju 1960-70, pa tudi med letoma 1971 in 1975 se je rast števila prebivalstva umirila, tako v mestu kot v obmestju. To je bila posledica splošnega upada stopnje rasti prebivalstva na Poljskem. Na drugi strani je l. 1960 uvedena omejitev doseljevanja v Varšavo povzročila tudi zmanjšanje doseljevanja z agrarnih območij na mestno območje. Kljub vsemu se je migracijski saldo večal iz leta v leto. Prebivalstvo pa se ni doseljevalo le v Varšavo, pač pa tudi v bližnja mesta.

Demografsko razmerje med Varšavo in njeno zunanjo cono se v osnovi ni spreminjalo v obdobju 1950-1970. Približno dve tretjini prebivalstva še vedno živita v mestu, tretjina pa v zunanji coni.

Nova upravna razdelitev l. 1975 otežuje primerjavo podatkov po upravnih enotah. Obstajajo zelo jasni znaki, da obseg varšavske aglomeracije na večini območjih presega meje vojvodstva, posebno na vzhodni in zahodni strani. Za jasnejšo opredelitev meje aglomeracije bi bila potrebna interdisciplinarna raziskava.

V zadnjih letih prebivalstvo Varšave še vedno hitro narašča. To je povezano z naraščanjem pozitivnega migracijskega salda, ki ga je omogočila velikopotezna stanovanjska gradnja. Ostala mesta v obmestju ravno tako naraščajo, predvsem zaradi organizirane stanovanjske izgradnje, ki sloni predvsem na združni osnovi.

Povsem drugačen razvoj pa doživlja podeželje v obmestju Varšave. Prvič po vojni je po letu 1970 prišlo do zmanjševanja števila prebivalstva. Tak razvoj ima obraz tudi v številu novozgrajenih stanovanj, ki je skoraj simbolično; l. 1976 je bilo na primer zgrajenih le 1355 stanovanj, od tega približno tisoč v privatni režiji. Privatne hiše so grajene po nizkih tehničnih in prostorskih standardih, mnogokrat postavljene sploh brez dovoljenja. Položaj se le počasi izboljšuje, to pa tudi zaradi slabo razvite tehnične infrastrukture, ki marsikje omejuje možnosti izgradnje in opremljanja stanovanj po sodobnih načelih in standardih.