

PL-ISSN 0866-9708

INSTITUTE OF GEOGRAPHY AND SPATIAL ORGANIZATION
POLISH ACADEMY OF SCIENCES

CONFERENCE PAPERS 7

THE IMPACT OF URBANIZATION UPON RURAL AREAS

Papers from the 5th Polish-Italian Geographical Seminar
Warsaw and Szymbark, June 8-13, 1988

Edited by
PIOTR KORCELLI and BOŻENA GAŁCZYŃSKA



WARSZAWA

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Opracowanie redakcyjne

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Krakowskie Przedmieście 30
00-927 Warszawa
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PL-ISSN 0866-9708

<http://rcin.org.pl>

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INTRODUCTION

The present volume consists of a set of papers presented at the 5th Polish-Italian geographical seminar which took place at Szymbark, in Southeastern part of Poland between June 8-13, 1988.

The general theme of the seminar was formulated as: The Impact of Urbanization Upon Rural Areas. The Italian participants represented the universities in Palermo, Pisa, and Pescara; the Polish participants, the majority of whom came from the Institute of Geography and Spatial Organization of the Polish Academy of Sciences in Warsaw, included also a group of scholars from academic institutions in Cracow: the Jagellonian University and the Academy of Pedagogics.

The programme of the seminar covered six paper sessions and two one-day field trips. Altogether 15 papers were presented and discussed. The topics ranged from demographic and social change in the rural areas, the rural depopulation processes, rural-to-urban and rural-to-rural migrations, to the evolution of agriculture in zones of urban influence as well as land-use conflicts in the peripheral zones of urban agglomerations. Supplementary topics included the social structure within urban areas, the role of transportation in the integration of rural areas, changes in agriculture and in the rural landscape of the mountainous regions. Several papers focused on methodological questions: application on population projection models, concepts of border and peripheral regions, methods of typology of rural areas.

The field trips, considered to be an important part of the Seminar, were aimed at presentation of recent socio-economic developments in the highlands of Southeastern Poland - the Beskid Mountains and the Jasło-Krosno Basin. These

areas have traditionally been characterized as multi-functional, combining agricultural, tourist, and industrial activities.

At the concluding session of the seminar a joint resolution was presented for discussion and signed; the 5th Seminar was evaluated as successful, and plans for the next, 6th Seminar, to take place in Italy during 1990 were outlined.

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URBANIZATION OF RURAL AREAS
IN POLAND AFTER WORLD WAR II

1. Introductory remarks

The present paper, of necessity quite short, cannot contain complete presentation of the complex subject matter related to the influence exerted by the urbanization processes on both socio-economic-demographic transformations and spatial organization of the rural areas in Poland after 1944/45. Attempts at such presentation have already been undertaken by the present author, most recently together with H. Rucz-Pruszyńska, in the report entitled "Podstawowe problemy rozwoju małych miast i osadnictwa wiejskiego" (Fundamental problems of development of small towns and rural settlements), prepared for the seminar organized in February 1986 by the Polish Town Planning Association and the previous Ministry of Construction and Space and Municipal Economy.

Problems of broadly conceived housing construction and its transformations in rural areas after the World War II were taken up in a larger study entitled "Główne problemy budownictwa mieszkaniowego na wsi" (Main problems of housing construction in rural areas), published in the monthly "Wieś Współczesna" 12, 1987. Thus, in the present paper the subject matter was consciously narrowed down and attention was focussed primarily on demographic and socio-professional transformations of the rural population in Poland. Hence, the following issues were most pronounced in the paper:

- a) the tendency to stabilization of the overall rural population numbers against the background of the general population number growth in Poland and population concentration in large towns;

- b) changes in the professional structure of rural population, including growth of the non-agricultural rural population (by factor of 2.5), as well as regional differentiation with that respect;
- c) influence of recreation and tourism of the urban population on the way rural areas are being organized and developed;
- d) emphasis was placed upon the rural-to-urban migration processes and upon the consequences of these processes for the age and sex structures of rural population as well as regional differentiation with that respect - in many cases negative and threatening the normal development of rural areas.

I consider it my duty to turn attention, in a synthetic manner, to two problems, related to rural areas of Poland:

1. Significant scattering of the rural settlement system in Poland - consisting of more than 40 thousand villages - causes that an average village is small, a mere 350 inhabitants or so. This makes it difficult to go on with provision of villages with social and technical infrastructure facilities, and therefore entails relative lowering of the living standard in the countryside.
2. Housing constructions in rural areas in Poland are in 80% privately owned. These buildings were in 60% constructed after the World War II in permanent form, so that the existing scattered settlement system is thereby stabilized. This situation makes it more difficult to equip houses, for instance, with water, which is expressed in the fact that in 1984 only some 54% of houses had water supply systems and only some 40% had bathrooms. This, again indicates a lower living standard of rural population, when compared to urban population.

2. General background

Poland suffered enormous population losses during World War II - approximately 6 million lives - as well as material and cultural losses. As power was taken over by the political workers' and peasants' parties, wide socio-economic reforms were made possible, leading to unleashing of great social energy. The watchword principles of socialist democracy, adopted then as the basis of further action, were expected to lead to: a) broadly conceived social egalitarianism, b) accelerated industrialization and urbanization of the country, c) disappearance of differences between urban and rural areas, and d) relatively proportional regional development.

On the basis of agreements concluded with the USSR, a great spatial Westward shift of Polish territory occurred after the World War II. This required

socio-economic-spatial integration of the Regained Territories with the Old Territories and reconstruction, after the war-inflicted damages, of, for instance, such large towns as Warsaw, Wrocław, Gdańsk, Szczecin, as well as of some 0.5 million farmsteads. It can generally be stated that owing to: agrarian reform (some 1.5 million hectares of land in the Regained Territories were given over as farms to peasants, to manor servants and workers, as well as landless peasants), nationalization of large and medium a size industry, socialization of banks and trades, limitations on private ownership in crafts and trade, strict control of rented housing resources in towns - conditions for disappearance of sharp class differentiation existing before 1939, were created. There persist, of course, social stratuf differences. Quite pronounced industrialization policy has influenced in a decisive manner and accelerated the course of urbanization processes and the enormous growth of the urban population share (Table 1), and also the growth of population employed in non-agricultural profession, mainly in the socialized sector. It is this phenomenon that constitutes the main qualitative difference in the town-countryside relations in Poland between now and before 1939.

In 1950 agricultural employment constituted some 54% of the total employment. In 1960 agricultural employment was at 43%, in 1970 it decreased down to some 34%, to finally stabilize at around 29-30% since 1975. According to the studies conducted by the Central Statistical Office (GUS) there were in 1982 merely approximately 25% of the total population in households living on private farms, i.e. truly peasant households¹. It should be noted that the share of peasant population in 1938 was estimated at 50% of the total population. These changes in the occupation structure over the long time horizon are presented in Table 2. These data indicate that the present levels of employment in industry and in agriculture are very much alike. Thus, against the background of the transformations of the contemporary employment structures, observed in other countries of the world, it can be concluded that Poland still has a surplus of agricultural employment, while having saturated employment in industry with shortages in transport and communication, in trade and many cultural, social and other service. It seems, though, that without a change in the size

¹ Ludność wiejska związana z rolnictwem indywidualnym. Badania metodą reprezentacyjną. Stan w dniu 8.XII.1982 (Rural population living at least partly off private agriculture. Studies conducted with the representative method. State for December 8th, 1982), GUS, Statystyka Polska. Materiały Statystyczne 16, Warszawa 1983.

structure of private farms no significant transformations can take place. The average size of a private farm in Poland is now at about 5.0 to 6.0 hectares and is quite stable for some time already. It should be reminded that there were some 10 million people employed in agriculture in Poland in 1931, while there are only 5.0 million people, approximately, presently, so that the pre-war agricultural employment has been cut by almost half and therefore nearly all of the "hidden unemployment in agriculture" existing in the 1930s has been eliminated. Out of the presently employed 5.0 million people about 1 million work in the socialized agriculture and 4 million in private farming. It can be concluded that Poland still has a surplus of agricultural population. On the other hand, selective outmigration from the rural to urban areas has caused distortions of the age and sex structure of rural population, leading to a high share of the elderly and an underrepresentation of young women, in the marrying age especially on private farms.

3. Changes of occupational structure of population in rural areas of Poland

Besides changes in the absolute and relative size of the urban and rural population during the post-war period, one notes major shifts in the occupational structure of the rural population. Thus, in 1950 some 20% of the rural population lived out of non-agricultural jobs, while presently this share is at 50% (Figs 1, 2).

Non-agricultural rural population is composed of two fundamental groups. The first group consists of people living in villages and to a large extent commuting daily to their non-agricultural jobs in towns and industrial centers. They are, as a rule, connected with peasant farms, forming the stratum of the so-called workers-peasants, and only within the peripheral zones of large agglomerations this population group is truly non-agricultural.

The second group, presently smaller, but one whose importance shall be in my opinion growing in future, is constituted by people employed in non-agricultural professions in rural areas. These people are related to services rendered to the rural population. The professions here represented include: teachers (large share), health care service (medical doctors - in relatively small number, and auxiliary medical staff, which is quite numerous), cultural service (small group of employees), socialized trade employees (large group), employees of state administration, political parties and economic administration, as well as those employed in industry, transport and communication and

in construction. In 1978 some 3.3 million people employed outside agriculture lived in the countryside. Socialized agriculture employed some 0.8 million people, while private farming employed approximately 4 million. Thus, in 1978 for the first time the number of professionally active people living in villages and employed in the socialized sector equalled the number of those employed in the private farming sector². There are very significant regional differences in that respect. Thus, for instance, the Łódź voivodship had in 1978 only about 23% of the non-agricultural population living in rural areas while in the Bielsko-Biała and in Katowice voivodships this share was over 80%.

4. Changes in organization of the rural space

One should not by-pass the influence exerted upon urbanization processes by some phenomena, which appeared in Poland on a greater scale only after World War II. One of these phenomena is emergence of suburban zones. It is true that this phenomenon was appearing sporadically even before 1939, for instance in the Warsaw region and within the Upper Silesia Industrial District but on a significant scale it occurred in Poland only after World War II. At the beginning this development was related to electric commuter train lines, e.g. in the Warsaw region or in the seaside agglomeration of Gdańsk - Sopot - Gdynia. Later, i.e. since the 1960, it has been related to the growth of mass road passenger transport (State Bus Transport and municipal buses - reaching far beyond the administrative boundaries of towns). It is accepted to link this phenomenon to the agglomeration phase of urbanization in Poland³. Another cause, specific for Polish conditions, was the so called "urbanization gap". In the bigger and medium towns, as well as in industrial centres many new jobs have been created over the years, but numbers of flats constructed

² A. Stasiak: Struktury społeczno-demograficzne wsi polskiej i jej przemiany (Socio-demographic structures of Polish rural areas and their transformations), in: Wieś Polska 2000 II (Polish Rural Areas in 2000, II), Biuletyn KPZK PAN 122, Warszawa 1983.

³ S. Leszczycki, P. Eberhardt and S. Hejman: Aglomeracje miejsko-przemysłowe w Polsce (Urban-industrial agglomerations in Poland), Biuletyn KPZK PAN 67, Warszawa 1971; A. Stasiak: Procesy kształtowania i przeobrażania aglomeracji miejskich (Formation and transformation processes of urban agglomerations), Górnośląskie Studia Socjologiczne 7, Katowice 1969.

have been less than adequate.⁴ This, ultimately, forces mass long-range commuting and causes permanent settlement of the non-agricultural population in these rural areas which have good transport connections with job locations. In many cases one is dealing with socially not justified commuting, that is, when one-way trip takes more than 1 hour⁵. Other causes are related to the growth of average standard of life of population, particularly urban, to shortening of working hours, and to significant growth of population numbers living in large towns and in urban agglomerations. Thus, for instance, in 1985 approximately 50% of urban population in Poland, or 30% of the total Polish population, lived in towns of 100 thousand and more inhabitants. These people have generally low accessibility to natural environment of higher landscape and recreational value. Thus, motivations related to recreation and tourism find also their expression in the extensions of the settlement system, especially at the seaside, in the mountainous areas and in the lake districts, where numerous vacation and holiday making centers develop, offering jobs to the local population⁶. On the other hand, in some regions of the country rural villages have been transformed into the so called vacation or resort villages, specializing in tourist service. This is reflected in the style and magnitude of newly erected or enlarged family houses and the appearance of small, hotel-like buildings (on a greater scale, for instance, in the Nowy Sącz voivodship⁷). Typical examples are provided here by such localities as Bukowina, Murzasichle near Zakopane or the area of Szczyrk-Wisła in the Silesian Beskid.

Another way in which tourism and recreation activities find their expression is creation of the so called "second residences" ("second houses") or "dachas", located within the distance of 30 to 150 kms from large agglomerations and

⁴ A. Andrzejewski: Sytuacja mieszkaniowa w Polsce w latach 1918-1974 (Housing situation in Poland in the years 1918-1974), PWE, Warszawa 1977.

⁵ T. Lijewski: Geografia transportu Polski (Geography of transport in Poland), PWE, Warszawa 1986, 2nd ed., pp. 110-120, 230-242.

⁶ S. Wawrzyniak: Ekspansja ludności miast na tereny wiejskie (Expansion of urban population into rural areas), in: Wieś Polska 2000 (Polish rural areas in 2000), Biuletyn KPZK PAN 110, Warszawa 1980.

⁷ J. Michalak: Przestrzenne zagospodarowanie wsi letniskowych (Spatial organization of the vacation villages), PWN, Warszawa 1978.

medium size towns, in villages, or localities on the river or lake shores. This phenomenon was intensified in the 1970 and was related to the emergence of a quite numerous - in Polish conditions - group of relatively wealthy people, who could afford a car, a "dacha", and weekend outings almost every week. The phenomenon became common also as an effect the right to two-day weekends acquired by more and more professions⁸. When standard of life of urban population decreased (as it did during the period of 1980-1983) and gasoline was rationed, recreational trips had to be limited. One should envisage, though, their renewed increase and their greater significance for organization of the rural areas, once the expected gradual improvement in the life standard of urban population takes place.

Areas with natural environment advantageous for recreation and leisure occupy some 30% of the total surface of Poland (Fig. 3).

5. Consequences of rural-to-urban migrations

In the previous periods, i.e. in the 1st industrialization phase (end of 19th century and until 1914), as well as in the period of 1918-1939, Polish towns were not able to absorb population surpluses of rural areas. In my opinion, though, after the World War II and especially in the 1970s, excessive drainage of population resources from Polish rural villages to towns took place.

The latter statement is to some extent corroborated by an analysis of relations between the natural increase in rural areas and net rural- to-urban migrations during the period 1950-1985 (Table3). One can see a decrease of the natural increase in the rural areas from some 300 thousand per annum in the 1950s to some 150-160 thousand in the 1970s and to 150-140 thousand in the 1980s. Recently, that is in 1988 the absolute natural increase in the rural areas was only 111 thousand⁹. Negative net rural-to-urban migration grew significantly in the 1970s to attain, on the average, approximately 200 thousand persons per annum. Thus, for the first time since the 19th century,

⁸ W. Kosiński: Stan i perspektywy ochrony krajobrazu wsi polskiej (Present state and perspective of the Polish rural landscape protection), in: *Wieś Polska 2000* (Polish rural areas in 2000), Biuletyn KPZK PAN 110, Warszawa 1980.

⁹ *Mały Rocznik Statystyczny 1987* (Small Statistical Yearbook 1987), GUS 1988.

Polish villages were in the 1970s losing through outmigration more people than were gained due to natural increase. This negative trend slowed down during the crisis years of the 1980s, since towns have not been capable of offering adequate numbers of jobs and flats (especially flats), but positive net population increase in the countryside, resulting from subtraction of outmigration from natural increase, has been small (Fig. 4). In 1986 net rural-to-urban migration was at some 130 thousand persons, so that the natural increase (approximately 126 thousand) was again exceeded, in 1988 this relation was 144th to 111th.

It should be noted, on the other hand, that the great migrational movements, which as a rule involved younger age-groups (mainly people of 20-34 years of age) living in rural villages, have destabilized the age structures of the rural population. Thus, in accordance with the National Census of 1978, it turned out that the proportion of people of 60 and more years of age is much higher in the villages - 15% - than in towns - 12%. Presently, i.e. in 1986, this proportion in rural areas increased to 16.3%, while it remained at 12% in towns. An opposite phenomenon appeared in the age group of 20-34 years, which constituted some 28% of town population and only some 23% of rural population in 1978. These proportions are similar today. Unexpected phenomena affect the sex balance in the "marital" age group in the rural areas (the age group of 20-34 years). Namely, migrations from rural to urban areas involve first of all young women, and to only a much smaller degree men. That is why young men, and primarily private farmers have to some extent been deprived of the possibility of finding candidates for a wife. This phenomenon threatens future development of intensive agricultural production in private farming, which, as it is known, is founded upon family labour (Table 4).

There are, of course, significant interregional differences in both rural and urban population structure. The greatest shares of the elderly (above 60 years of age) are encountered in the Eastern and Central voivodships, which have suffered migration-due population losses over longer time periods. Białystok voivodship occupied the first place in this ranking, in 1978, 20% of its rural population was 60 and more years of age, while in 1986 the share was 22.9%. The smallest shares of the elderly are found in the Western and Northern voivodships. This can be explained by the process of settlement of relatively young people in these areas during the period following World War II. Similarly, the greatest outmigration of young women occurred in the rural areas of Eastern voivodships. In 1978 the masculinization coefficients (that

is, the number of men per 100 women of the "marital" age group) were in the Białystok voivodship - 144, in the Łomża voivodship - 141, in Biała Podlaska voivodship - 131 and in the Suwałki and Ostrołęka voivodships - 129. On the other hand, there were only 96 men per 100 women in the age group of 20-24 years in the Warsaw voivodship, which is an effect of a great inflow of young women to this voivodship.

Generally, population migrates out of those agricultural areas in which there are no possibilities of non-agricultural employment. This conclusion is to some extent corroborated by the results of sociological studies conducted in the Suwałki voivodship, as well as in the Siedlce and Biała Podlaska voivodships, where it is commonly believed that those who outmigrated to towns have attained a better standard of living¹⁰. Similar conclusion is offered by an outstanding expert on rural problems, Professor Dyzma Gałąj who emphasises that "the work of a peasant family is a non-stop work", both for the man, and for his wife. Nothing and nobody can liberate them from this work, since private farm can absorb any quantity of labour.

While working incessantly, farmers cannot have a better life, because they do not have time for this. Such a statement refers first of all to women. Forty years old women living in villages are so exhausted by work, that they often feel and look like elderly women. No wonder, therefore, that young women do not want to - if they do not have to - marry a farmer¹¹.

It seems that these remarks of sociological nature indicate the importance of the urban lifestyle on the present Polish village life. Furthermore, they indicate that without due consideration of the various components of the rural population needs, not just the fundamental needs concerning food, clothing, and housing, it is difficult to foresee the direction in which subsequent transformations of the rural areas in Poland shall go.

¹⁰ E. Stasiak: Wyludnianie się obszarów Suwalszczyzny (Depopulation of the Suwałki region areas), *Więś Współczesna* 6, 1980; W. Mirowski: Zróżnicowanie społeczno-gospodarcze a procesy wyludniania się województwa siedleckiego i białkopodlaskiego (Socio-economic differentiation and depopulation processes in the Siedlce and Biała Podlaska voivodships), *Biuletyn Informacyjny Problemu I*. 28, 50, Warszawa 1985.

¹¹ D. Gałąj: Sprzeczność w przeobrażeniach społeczności chłopskiej (A contradiction in the transformation of the peasant community), *Więś i Rolnictwo* 1, 1984.

Table 1. Population of Poland in the years 1946-1986 in the rural-urban breakdown

Population category considered	Years (estimated data for December 31st)					
	1946	1950	1960	1970	1980	1986
Polish total, million	23.6	25.0	29.8	32.7	35.7	37.6
%	100.0	100.0	100.0	100.0	100.0	100.0
Towns, million	8.0	9.2	14.4	17.1	21.0	22.8
%	34.0	36.9	48.3	52.3	58.7	60.6
Villages, million	15.6	15.8	15.4	15.6	14.7	14.8
%	66.0	63.1	51.7	47.3	41.3	39.4

Source: Roczniki Statystyczne GUS (Statistical Yearbooks).

Table 2. Changes in the employment structure in Poland in the years 1950-1980 for the chosen sectors of national economy

Sectors of national economy	Years				
	1950	1960	1970	1975	1980
Total employment, in thousand	10186	12401	15175	16572	17324
in %	100.0	100.0	100.0	100.0	100.0
out of that, in %:					
1. Industry	20.7	25.5	29.3	31.1	30.3
2. Construction	5.0	6.5	7.1	8.5	7.7
3. Transport and communication	4.5	5.6	6.2	6.4	6.5
4. Trade	4.8	6.0	6.9	7.2	7.5
5. Agriculture	53.6	43.3	34.3	29.3	29.7
Total for 1 through 5	88.6	88.9	83.8	82.7	81.7

Source: Roczniki Statystyczne (Statistical Yearbooks), GUS, Warszawa 1983.

Table 3. Proportions of natural increase in rural areas and net rural-to-urban migration in the years 1950-1985

Processes	Years							
	1951- -1955	1956- -1960	1961- -1965	1966- -1970	1971- -1975	1976- -1980	1981- -1985	1950- -1985
Natural increase (NI) in rural areas, in thousand persons	1460	1418	1056	837	871	815	770	7.227
Net rural-to-urban migrations (RUM), in thousand persons	628	420	502	697	938	1067	687	4.939
Difference NI - RUM in thousand	+832	+998	+554	+140	-67	-252	+83	+2.288

Source: Own calculations on the basis of Statistical Yearbooks (Roczniki Statystyczne GUS).

Table 4. Masculinization coefficient for the age group 20-34 years in 1978 and 1986

Population	Age subgroups					
	20-24		25-29		30-34	
	Years					
	1978	1986	1978	1986	1978	1986
Poland, total	104	105	102	105	101	102
Urban areas	97	100	95	95	97	94
Rural areas	116	113	117	124	109	120

Source: A. Stasiak: Wybrane problemy zagospodarowania przestrzennego wsi polskiej (Chosen problems of spatial organization of rural areas in Poland), Miasto, Rocznik Demograficzny (Demographic Yearbook) 1987, GUS, Warszawa 1987.

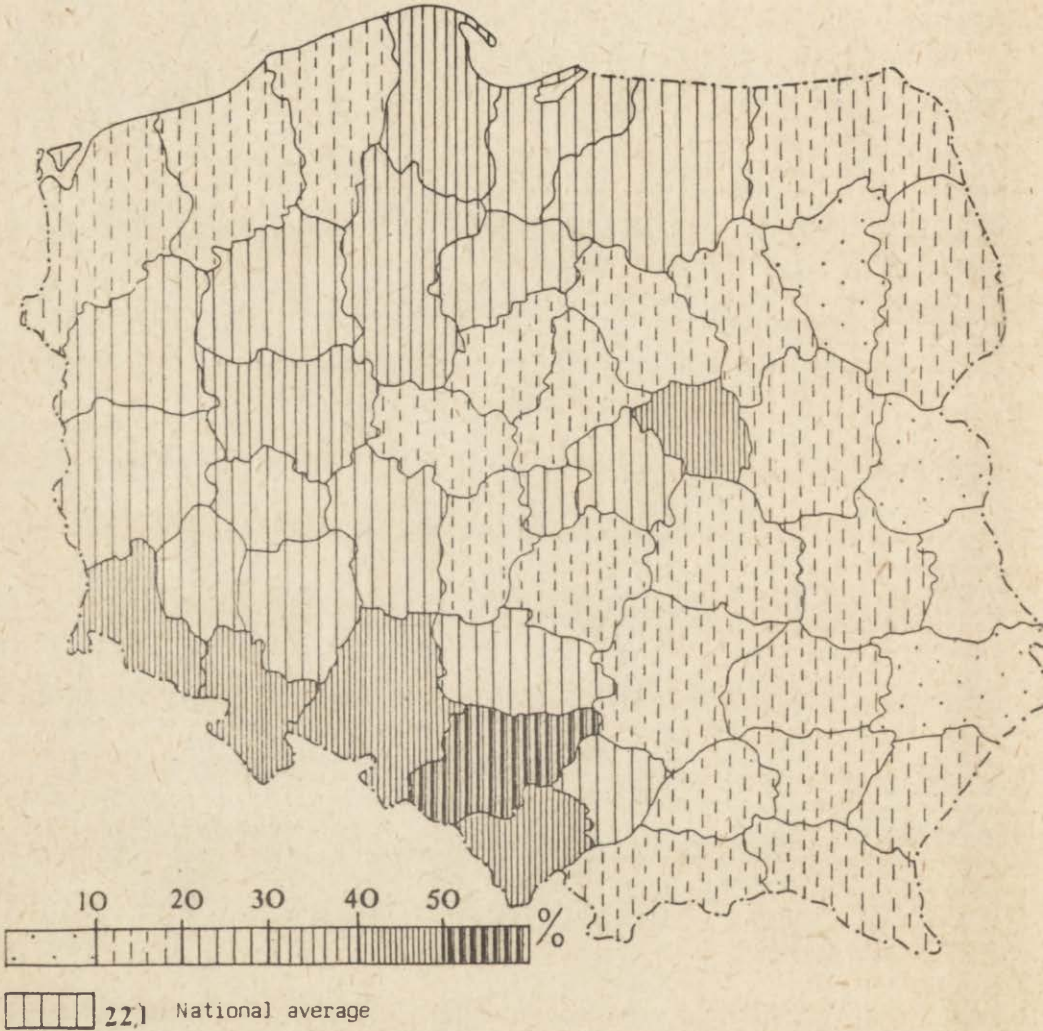


Fig.1. Share of non-agricultural population within the total rural population: 1950.

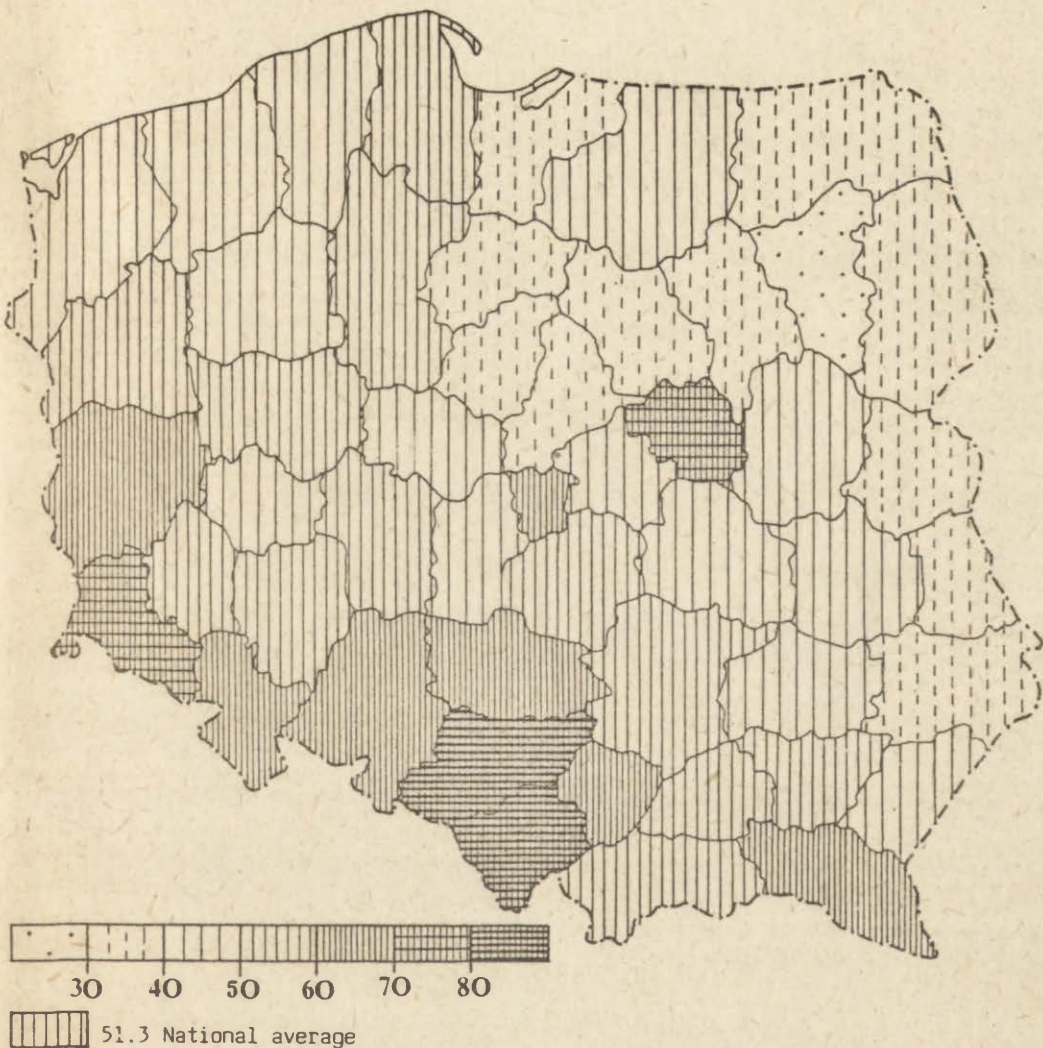


Fig.2. Share of non-agricultural population within the total rural population: 1978.

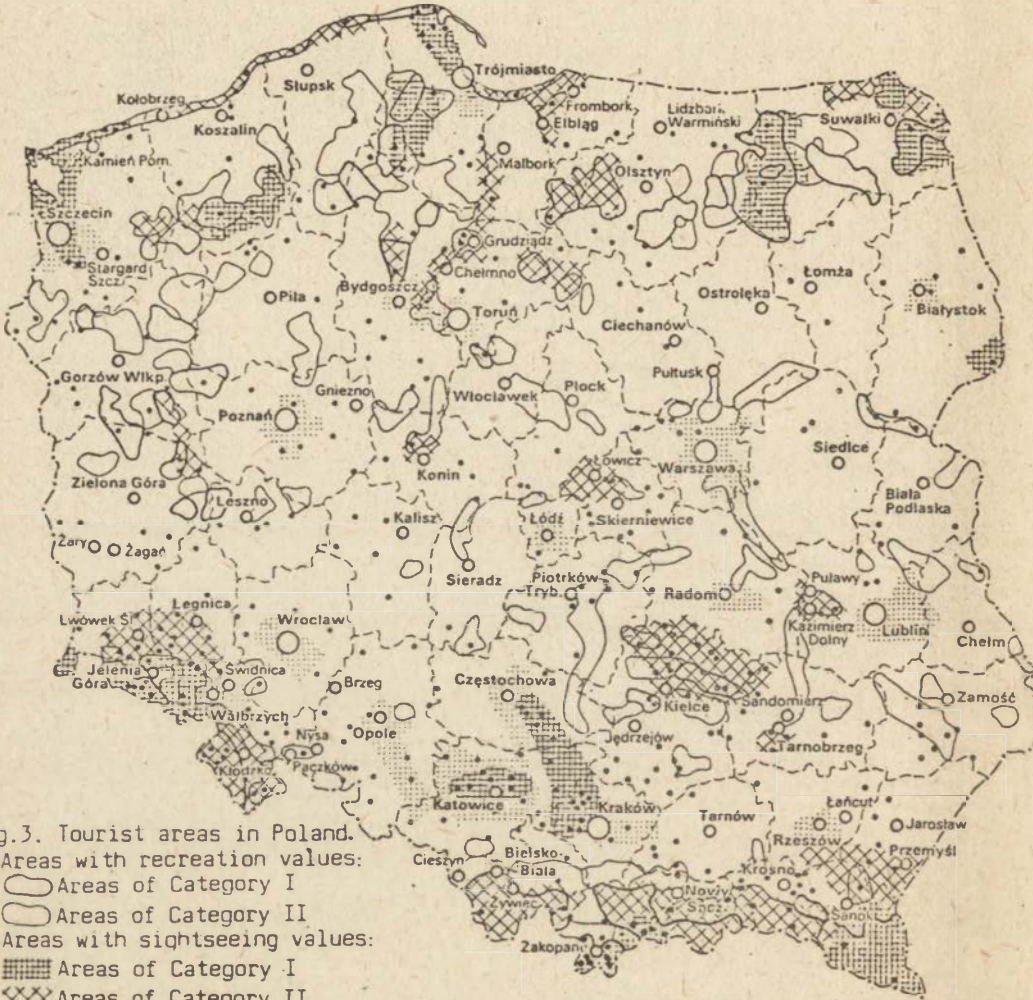


Fig.3. Tourist areas in Poland.

Areas with recreation values:

○ Areas of Category I

◌ Areas of Category II

Areas with sightseeing values:

▨ Areas of Category I

▩ Areas of Category II

○ Large sightseeing centres

◌ sightseeing centres

• smaller complexes and single object

◌ urban agglomeration

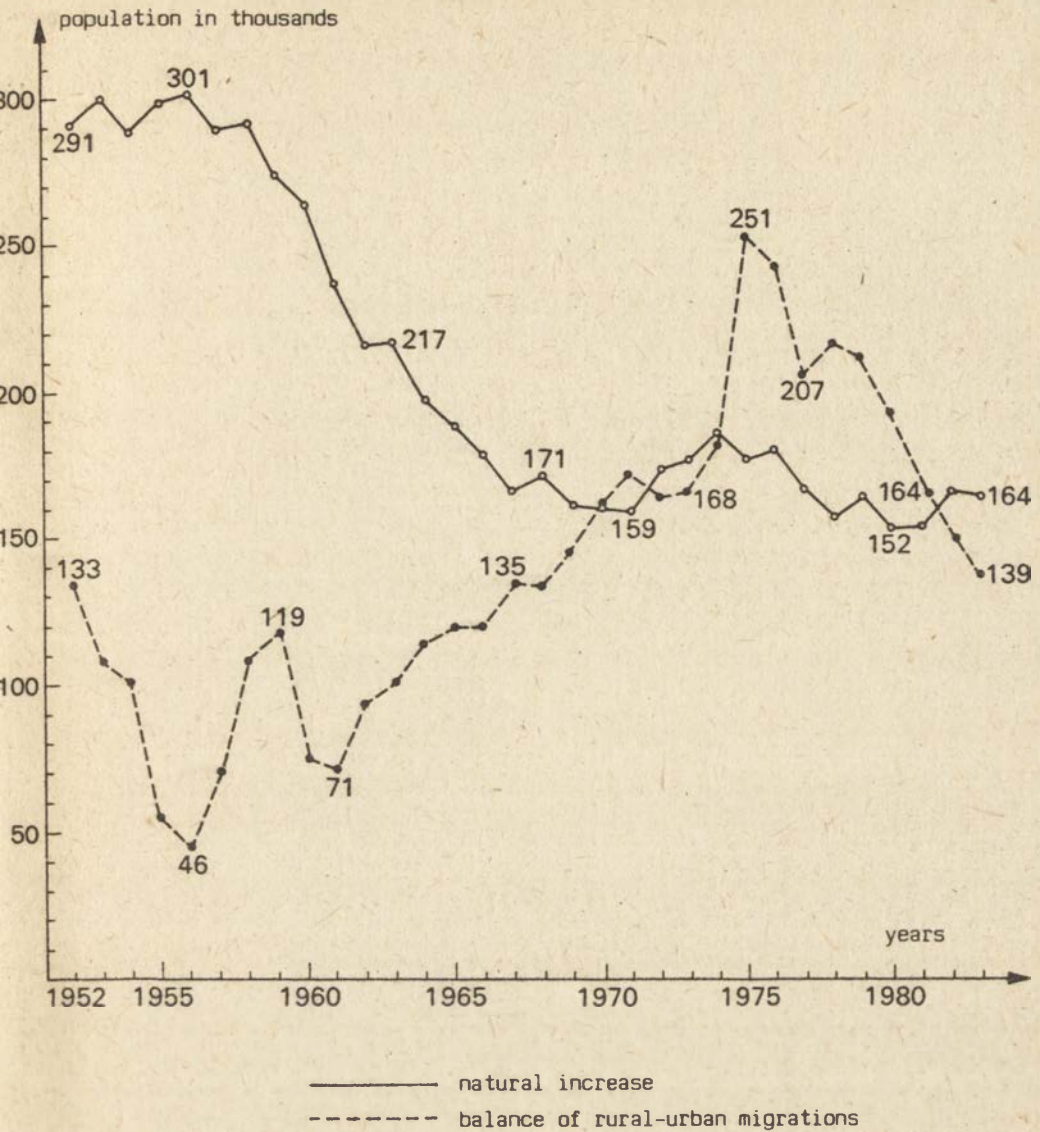


Fig. 4. Balance of rural-urban migrations and the natural increase in the rural areas, 1952-1983.

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URBANISATION ET RURALITE EN TOSCANE *

1. - En Italie on a pu constater, après la dernière guerre, un phénomène intense d'urbanisation alimenté par un fort exode rural. Ces déplacements de population ont commencé dans les années '50 et se sont renforcés dans les années '60. A partir de '75, on a remarqué un changement notable de la tendance en question:

- Les zones métropolitaines et les villes les plus grandes connaissent un accroissement très faible et parfois même un décroissement;
- Les zones encore en évolution augmentent à des taux réduits;
- Un grand nombre d'aires périphériques passent du décroissement à l'accroissement; cette dernière tendance, qui au départ concernait les alentours des grandes villes, s'est petit à petit étendue à de nombreuses zones du territoire italien;
- Les zones marginales (principalement les aires de montagnes et de collines) voient souvent leur population diminuer lentement.

Le but de cette recherche est d'étudier ces nouveaux comportements démographiques dans la zone constituée par six provinces de la Toscane qui touchent les axes les plus peuplés de la région et par la province de La Spezia. Ce choix est dicté par l'intention que nous avons d'examiner toute la conurbation toscane qui s'étend de Florence à la mer et le long de la côte, de La Spezia au sud de Livourne.

* Ce travail est le résultat d'une collaboration étroite entre les Auteurs. Toutefois la rédaction des paragraphes 1 et 3 due à M. Costa, tandis que le paragraphe 2 est rédigé par U. Formentini.

Nous basant sur la région toscane (assez emblématique), nous proposons de tracer succinctement les différents comportements démographiques des territoires ruraux et urbains, mais surtout d'en souligner les récentes variations dans leurs rapports numériques. Au cours du siècle, et jusque dans les années '60, les zones rurales étaient caractérisées en Italie par un solde démographique naturel positif et par un solde migratoire négatif, tandis que pour les villes, les soldes migratoires étaient très fortement positifs. La campagne jouait alors le rôle de fournisseur de population pour les villes et voyait le nombre de ses habitants se réduire, au profit des aires non rurales, c'est-à-dire des zones urbaines ou limitrophes qui connaissaient au contraire une augmentation de leur population.

La densité moyenne de la population de la zone considérée s'élève environ à 250 hab./km² (donnée de 1986): un noyau de communes autour de Florence, la ville elle-même et une aire constituée par des communes côtières présentent des données dépassant 500 hab./km². Toute la conurbation pourrait être caractérisée par des communes dont la densité est supérieure à 250 hab./km²: celles-ci forment une bande continue même si quelques îlots présentent çà et là une densité inférieure (Fig. 1). La concentration de la population, que nous avons calculée avec le coefficient de variation, offre un développement assez intéressant: l'indice, établi sur la densité des communes et qui tient compte des variations d'extension territoriale, va de 1.53 en 1951 à 1.57, 1.68, 1.61 dans les trois recensements successifs. On peut donc remarquer que les changements les plus importants, à ce propos, ont eu lieu dans les années '50, et il faut attendre les années '70 pour vérifier une certaine diffusion sur tout le territoire; la situation étant restée pratiquement stable de 1961 à 1971.

L'augmentation de la population dérive essentiellement du mouvement migratoire, étant donné que l'accroissement naturel tourne autour des valeurs de 3.5% dans les années '60 et de -0.3% dans les années '70. Il faut remarquer qu'en 1972, seulement cinq communes sur 64 comptant plus de 10000 hab. avaient un solde naturel négatif, alors qu'en 1981 il n'y a plus que 13 de ces communes qui aient un solde naturel positif.

En ce qui concerne l'accroissement migratoire, il faut dire qu'une grande majorité des inscriptions d'état civil enregistrent des déplacements dans un court rayon: entre 1955 et 1974, les inscrits provenant de la même région ont toujours dépassé les 2/3 du total des inscrits, et ceux de la même province, la moitié. A propos de l'accroissement démographique global, il convient de remarquer qu'il est corrélé de façon positive avec le logarithme de la densité

de population: l'indice de corrélation voit pourtant ses valeurs baisser progressivement durant les trois décennies.

La courbe de régression indique que les communes ayant des taux de variation positifs avaient une densité de population de 189, 160 et de 93 hab./km² en 1961, 1971 et 1981.

Cela signifie que:

- il est de moins en moins vrai que les communes les plus peuplées augmentent le plus;
- quand on parle de la "taille" d'une commune, on désigne la densité de population plutôt que le nombre des habitants;
- la corrélation entre densité et accroissement est plus valable pour les communes de taille intermédiaire que pour celles qui se situent aux extrémités de la distribution (communes très petites ou très grandes).

Pour étudier les différents types d'accroissement démographique, les communes ont été classées en 9 groupes homogènes en fonction du comportement démographique, au moyen du cluster analysis.

Le tableau 1 rassemble les taux moyens de variations des groupes pour les trois périodes. La Fig. 2 démontre graphiquement le développement des divers groupes en supposant une population égale à 100 en 1951: elle permet de conclure que les différences entre ville et campagne, en ce qui concerne les variations démographiques, après s'être accentuées au maximum dans les années '60, sont actuellement en diminution. L'observation de la Fig. 3 fait apparaître que les accroissements de population les plus importants se sont propagés chronologiquement à partir des villes principales (type "accroissement décroissant") jusqu'aux zones les plus éloignées (les communes des ceintures les plus proches dans les années '50, quelques noyaux industriels et les villes les plus petites dans les années '60, leurs propres ceintures beaucoup plus récemment). En même temps, de nombreuses communes dont la population diminuait démontrent un décroissement plus faible dans les années '70.

2. - Si nous passons maintenant à quelques observations ultérieures rapides et générales sur les variations de la distribution territoriale de la population toscane, on constate dans le dernier intervalle entre les recensements que la région voit une violente baisse de son augmentation démographique (seulement +2.8% en dix ans): ce chiffre dérive presque intégralement du mouvement migratoire en ce sens que le mouvement naturel, dans la même période, s'avère pratiquement nul (+0.3%) et dans les toutes dernières années il est

même négatif. La réalité toscane comparée à l'évolution nationale révèle à la fois des concordances et des discordances significatives par rapport aux tendances des autres régions. Elle présente encore une fois des données intermédiaires par rapport aux régions septentrionales, dont elle est plus proche, et celles des régions méridionales du pays.

En 1972, l'accroissement migratoire régional (+18 000 hab.) avantageait totalement les communes ayant plus de 10 000 habitants (les autres avaient au total un solde pratiquement en équilibre: +58 hab.); par contre, en 1981 l'accroissement migratoire global a été de +8500 hab. et de ceux-ci, 3400 allaient en faveur des communes ayant moins de 10 000 hab.

Bien sûr, le cadre devient plus varié à partir du moment où l'on fait une analyse au niveau communal. Pour cela nous avons cru nécessaire de subdiviser les données du mouvement démographique en mouvement naturel et mouvement migratoire, pour ne pas sous-estimer la différence de ces deux composantes de la tendance démographique. Un autre problème est de bien cerner les considérations que l'on peut faire sur la présence de hauts et de bas indices qui demanderaient une étude très détaillée de leur cause. Nous nous voyons donc forcés de nous contenter d'une lecture souvent ambiguë des données (par ex.: les soldes naturels négatifs sont parfois typiques des communes ayant des structures démographiques appauvries par l'exode durant les années précédentes mais peuvent être également propres aux communes urbaines demeurant depuis longtemps en situation démographique stable).

La combinaison différente des trois variables constituée du solde naturel, du solde migratoire, et du chiffre total détermine huit situations diverses (Fig. 4).

Synthétiquement nous pouvons dire que les types 1, 2, 3, 4 sont ceux qui ont un solde naturel positif, que les types 1, 2, 7, 8 sont caractérisés par un solde migratoire positif et que les types 1, 2, 3, 8 présentent un solde total positif.

Le tableau 2 permet de lire le passage des communes d'une structure à une autre selon les périodes (1961-1971, 1971-1981) et donc de repérer le degré de mobilité à l'intérieur de la grille proposée. Cette mobilité s'avère assez élevée; seules 51 communes sur un total de 278, conservent en effet la même structure pour ces deux périodes: elles sont, en grande partie, du type 1 (accroissement migratoire positif supérieur à l'accroissement naturel positif) La forte mobilité des communes à l'intérieur de la grille est principalement

imputable au fort décroissement des cas de soldes naturels positifs (222 pour la première période, 93 pour la seconde). La disparition remarquable de la classe 4 (fort décroissement migratoire non compensé par les augmentations naturelles) et la redistribution des communes de la classe 5 (décroissements naturels qui s'additionnent à de forts décroissements migratoires) dans une grande partie des classes 6, 7, 8, sont également assez considérables.

En résumé, la diffusion de l'accroissement ou de toute façon l'amélioration de la situation semble étroitement conditionnée par l'accessibilité aux centres les plus grands ou encore mieux aux systèmes de pôles et des axes. En vérité, le long de la ligne directrice de la mer Tyrrhénienne au sud de Livourne et le long de l'axe de Valdarno supérieur-Valdichiana, l'amélioration de la situation générale semble être due à un renforcement des pôles plutôt qu'à une revitalisation consistante des zones.

Cet ensemble d'événements qui se réfère exclusivement aux phénomènes résidentiels et est pourtant étroitement lié aux lois du marché immobilier, pourrait être également vu selon une logique qui demande des choix économiques d'échelle à partir du niveau de développement: tout comme les entreprises choisissent d'engager des capitaux dans des filiales plutôt que dans des sièges centraux, l'activité du bâtiment privilégie les zones périphériques au désavantage des zones centrales, quand celle ci présentent des situations de coûts et d'ennuis bureaucratiques excessivement négatifs. En effet, beaucoup de communes depuis longtemps urbanisées, en particulier celles des principaux centres régionaux, commencent à connaître de faibles diminutions de population, tandis que celles qui ont été urbanisées plus récemment présentent des signes d'augmentation parfois assez importants, spécialement quand elles se trouvent placées dans la première ceinture.

Les zones centrales restent donc les mêmes, malgré une diminution de la rapidité de concentration; les zones périphériques s'amplifient, et dans beaucoup de cas se renforcent, spécialement celles qui servent de liaison ou de complément entre les différents pôles; les zones les moins équipées et/ou les plus éloignées des espaces régionaux sont réellement considérées comme marginales. Peut-être faut-il parler de réduction des extrêmes plutôt que d'inversion de tendance. Il ne semble pas possible de parler d'un phénomène nouveau mais plutôt de la variation quantitative d'un phénomène déjà existant; en partant de la seule analyse statistique des données démographiques sans recherche des causes, il est difficile de s'exprimer en termes qualitatifs. Le

fait que la commune de Florence diminue de quelques milliers d'habitants et que toute l'aire limitrophe atteste un ralentissement des taux d'accroissement démographiques, ne signifie pas que Florence soit aujourd'hui moins "ville" ou que ses fonctions centrales en soient pour autant diminuées. Cela peut même vouloir dire le contraire. La diminution de la présence industrielle dans les zones urbaines évoluées, et donc une réduction parfois violente du nombre des installations qui emploient une grande quantité de main-d'oeuvre est un phénomène général. Mais en même temps les activités tertiaires qualifiées se répandent dans ces aires urbaines avec des caractéristiques marquées "non basique" qui ne produisent pas nécessairement des accroissements démographiques mais, ce qui est plus qualifiant, des dominations plus fortes et plus variées sur la territoire polarisé.

Il semble possible d'affirmer que nous assistons à une redistribution moins rapide de la population sur le territoire régional, mais toutefois les habitants continuent d'augmenter dans les zones limitrophes des grandes villes. La réduction de la rapidité du phénomène est éprouvée également par le fait qu'aussi bien le solde naturel, que le solde migratoire, les variations inférieures à 5% annuel en positif ou en négatif, concernent 63 communes pour la période de 1961-1971 et 116 pour la période de 1971-1981.

Ces observations sur les mouvements démographiques pourraient, peut-être servir à vérifier la variation du rôle de position centrale pour des zones contiguës qui semble s'opérer à l'échelle nationale. Elle se vérifie aussi en Toscane à l'échelle régionale, avec une complication dans les détails due à des organisations territoriales locales préexistantes, conditionnées par une certaine caractéristique de la structure économique - productive de la région. Les motifs locaux de la production et de l'installation des personnes sont aujourd'hui sujets à des forces plus complexes et peut-être différentes de celles du passé.

Désormais, dans un certain sens, la même ville est allée à la campagne. La société moderne des moyens de communication, la diffusion générale du confort, auparavant exclusivement urbain, a rendu moins important le fait d'habiter en ville ou d'habiter à la campagne. Il s'agit évidemment d'une campagne périphérique et non marginale. Peut-être que le dépeuplement s'atténue ou s'arrête presque aux zones qui contournent les grands axes régionaux, mais il continue dans les vastes contrées de l'émigration traditionnelle.

Dans ces dernières, dans beaucoup de cas, le phénomène de l'exode diminue en intensité, que ce soit à cause d'un appauvrissement démographique physiologique, ou peut-être également (mais pour le démontrer il serait nécessaire de faire d'autres recherches) des fractions périphériques qui se regroupent dans les centres moins isolés des communes.

Il faut considérer que l'exode rural est bel et bien fini. Le monde agricole, arrivé au seuil de la survie démographique, a violemment réduit cet exode. Aujourd'hui nous assistons, à l'intérieur de la zone urbanisée, à une redistribution plus lente des personnes qui font des choix résidentiels plus sélectifs (parce qu'elles sont libérées de l'urgence de l'ancienne envie qui existait chez les fermiers) donnant vie à un mouvement démographique moins tumultueux. Pour cette raison et pour d'autres motifs, nous pourrions nous trouver devant la partie finale d'un processus à croissance freinée dans laquelle est intervenue une importante variation de quelques composantes.

3. - Nous avons supposé que les variations de population étaient en corrélation avec les variations des activités économiques; afin de contrôler cette hypothèse, nous allons examiner (étant les mêmes: les groupes individualisées dans le premier paragraphe de communes et la période) les variations de la structure professionnelle de la population. Or l'analyse de la variance nous indique que, même si les groupes ont été obtenus à partir de la variation démographique, ceux-ci sont également significatifs en fonction des paramètres concernant les pourcentages d'emplois dans les secteurs primaire, secondaire et tertiaire.

La Fig. 5 montre la tendance des trois secteurs traditionnels de l'activité dans le temps et elle n'a nullement besoin de commentaire. On constate un déclin général dans le secteur de l'agriculture, qui dans certaines zones atteint environ 5%; les valeurs sont beaucoup plus élevées dans les zones de type D. et R. Il s'agit souvent de collines ou de montagnes où l'activité agricole s'avère plus difficile ou de moins peu rentable. Au cours des dix dernières années, l'augmentation du secteur tertiaire s'est faite aux dépens de l'agriculture mais aussi de l'industrie ce qui est un fait nouveau. Le groupe contenant les villes principales résulte d'avoir anticipé cette tendance dans les années '60 (A.2.2).

En ce qui concerne l'industrie, nous tenons à préciser que les données à disposition sont celles qui concernent les résidents et donc que la migration

des citadins vers les industries extra-urbaines n'apparaît pas toujours de façon nette, ce qui peut parfois dissimuler la forte décentralisation industrielle. De l'observation de la Fig. 6, il apparaît que cette décentralisation industrielle a sans aucun doute envahi les communes de type A.2.1 dans les années '60 et que cette tendance s'est accentuée dans les années '70; mais il est plus difficile de conclure que cette décentralisation intéresse le territoire régional tout entier. On peut cependant parler de "stabilisation", sur les valeurs qui semblaient destinées à diminuer encore, dans les aires éloignées des zones centrales. En ce qui concerne la Toscane, il est difficile de dire si nous avons à faire à une importante décentralisation industrielle: sans aucun doute, il y a eu une certaine décentralisation qui a englobé des zones plutôt vastes (on voit l'extension des types A.2.1 et A.3.4 sur la carte) mais il semble qu'elle ait épuisé sa portée. Il faut ajouter que ce phénomène a également concerné des zones traditionnellement industrielles. Il est donc plus juste de parler d'une accentuation du processus d'industrialisation que d'une forte diffusion sur le territoire du secteur secondaire.

Les graphiques et le tableau montrent que la tendance du secteur tertiaire se révèle différente de celle de l'industrie: sa concentration diminue au profit d'une diffusion sur tout le territoire, laissant pourtant le rôle prioritaire à la ville.

Il ressort de cette analyse, que l'importance de l'industrialisation dans les rapports ville-campagne continue de prévaloir. En effet, les variations de l'agriculture et du tertiaire pendant ces trente années ont intéressé le territoire d'une manière plus ou moins uniforme, malgré des tendances allant dans le sens opposé (augmentation et diffusion pour le tertiaire, diminution et concentration pour l'agriculture). De façon opposée l'industrie toscane typique (qui est de petite dimension, très flexible, de vieille tradition et non localisée dans les plus grandes villes) a conditionné la distribution de la population d'une manière très importante. Les principaux pôles industriels ont accueilli dans un premier temps une partie de l'exode rural puis le reflux des villes et, pour finir, sont en train d'étendre leur accroissement démographique aux communes rurales voisines.

Il existe donc, en fait, différents motifs pour expliquer soit la légère reprise soit la faible perte des zones les plus périphériques: le tourisme, l'assistance sociale, quelques formes voilées de reconversion agricole, l'augmentation des offres d'emplois par les administrations locales. Cela a

entraîné un bien être économique supérieur: la diffusion de l'automobile, de la télévision et d'habitations plus confortables. L'écart quant à la qualité de la vie entre le genre de vie urbaine et rurale s'est donc ultérieurement réduit.

Mais l'industrie a également influencé ce phénomène car elle a apporté du travail dans les zones périphériques. Que cela soit pour l'industrie locale traditionnelle (même si elle est en déclin, elle est toujours présente) ou pour celle de la partie la plus développée de la région, qui connaît une déconcentration de dimension microscopique (par exemple travail à domicile) mais ou total très importante.

Malgré tous ces problèmes, ces zones marginales semblent actuellement stabilisées avec un niveau de population plus acceptable, tandis que vingt ans auparavant on pouvait parler de véritable surpopulation de la campagne.

Une dernière observation: le territoire de la conurbation n'est pas monocentrique mais il est doté de zones ayant des spécialisations économiques différentes; cela peut nous faire penser que même en Toscane nous assistons à une perte d'importance de la hiérarchie classique établie par Christaller. En peu de mots, les principales occasions de la vie économique et sociale ne se trouvent plus concentrées dans un ou dans quelques centres importants, mais disséminées dans de nombreuses zones ayant une spécialisation très précise. Si l'on considère ensuite que différents services (culturels, sociaux et économiques) ont été récemment décentralisés et que de nos jours quelques liaisons avec les marchés nationaux les plus grands et avec les marchés internationaux se produisent de manière directe, sautant les échelons intermédiaires de la pyramide hiérarchique, l'on peut remarquer qu'il serait profitable de reconsidérer sérieusement le modèle classique du réseau urbain.

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Tableau 1. Variation de population (taux % moyen pour chaque groupe)

Code	Groupes	1951-61	61-71	71-81	n° des comm.	% populat.	
						51	86
A.1	Faible accroissement	- .06	+ 2.19	+ 2.63	31	15.5	14.5
A.2.1	Fort accroissement	+13.66	+22.64	+11.56	19	10.8	14.1
A.2.2	Accr. décroissant	+11.32	+10.86	+ 1.54	23	43.7	45.6
A.3	Accr. constant	+ .36	+ 9.72	+ 8.87	9	3.1	3.2
A.4	Accr. croissant	+ 5.90	+ 8.54	+17.16	11	2.6	3.0
R.	Reprise de l'accr.	-14.54	-11.26	+ 7.13	33	7.4	5.7
D.1	Fort décroissement	-22.50	-26.82	-12.19	49	7.0	3.3
D.2.1	Décroissement 1960	- 2.53	-11.61	- 3.90	13	4.1	2.8
D.2.2	Décroissement 1950	-15.85	-12.33	- 5.65	19	3.0	1.8
	"outliers"				9	2.8	5.8
					216	100	100

Correspondance entre groupes et zones géographiques.

A.1	Faible accroissement	Moyennes et petites villes décentrées
A.2.1	Fort accroissement	Centres d'ancienne industrialisation
A.2.2	Accroissement décroissant	Villes principales
A.3.,4	Accr. constant et croissant	Centres de récente industrialisation
R.	Reprise de l'accroiss.	Petits centres revitalisés
D.1	Fort décroissement	Centres ruraux marginaux
D.2	Décroissement	Centres ruraux

Tableau 2. Evolution des structures démographiques toscanes (1961-1981)

nombre des communes = 278	structures dans la première période (1961-1971)										
	1	2	3	4	5	6	7	8			
	1	34	17	8	15	1	-	-	-	75	
	2	1	1	1	4	1	-	-	-	8	
	3	1	2	-	2	-	1	-	-	6	
structures dans la deuxième période (1971-1981)	4	2	1	1	-	-	-	-	-	4	total par structure dans la deuxième période (1971-1981)
	5	3	-	4	33	15	-	-	-	55	
	6	1	-	-	17	18	1	-	1	38	
	7	6	1	1	12	17	1	-	-	38	
	8	14	8	-	32	8	1	-	-	63	
		62	30	15	115	60	4	-	1		communes qui ne varient pas de structure = 51
		total par structure dans la pre- mière période (1961-1971)									

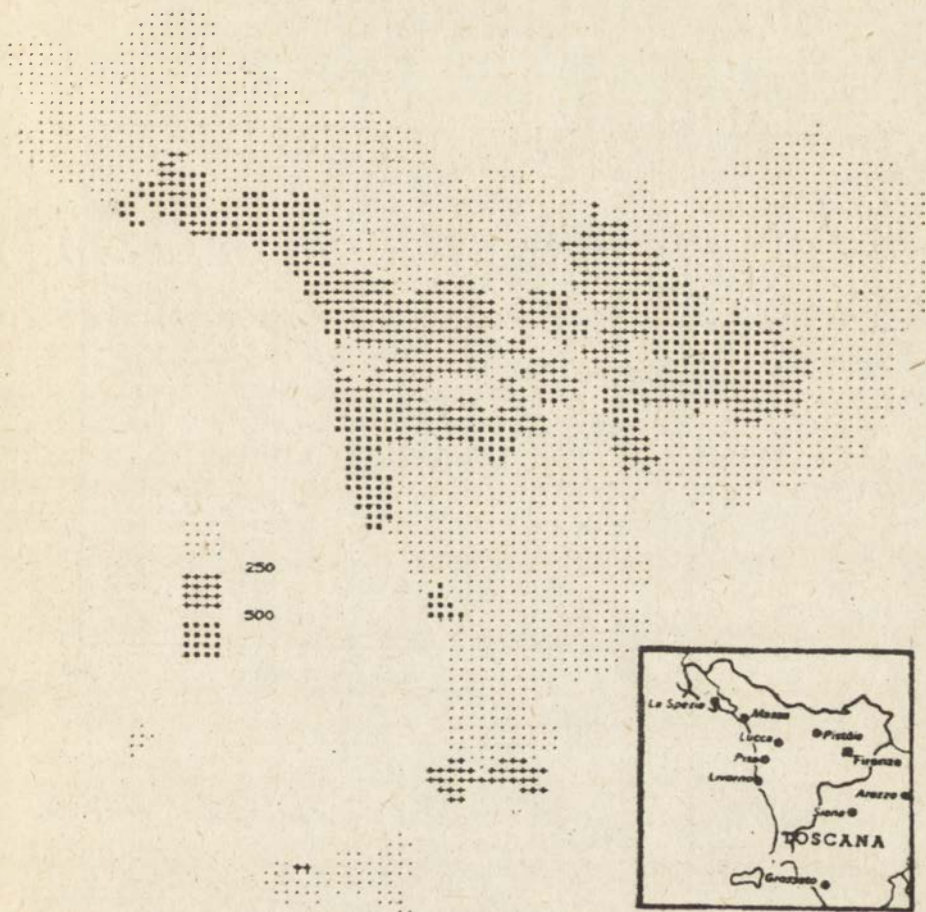


Fig.1. Densité de population (hab./km²).

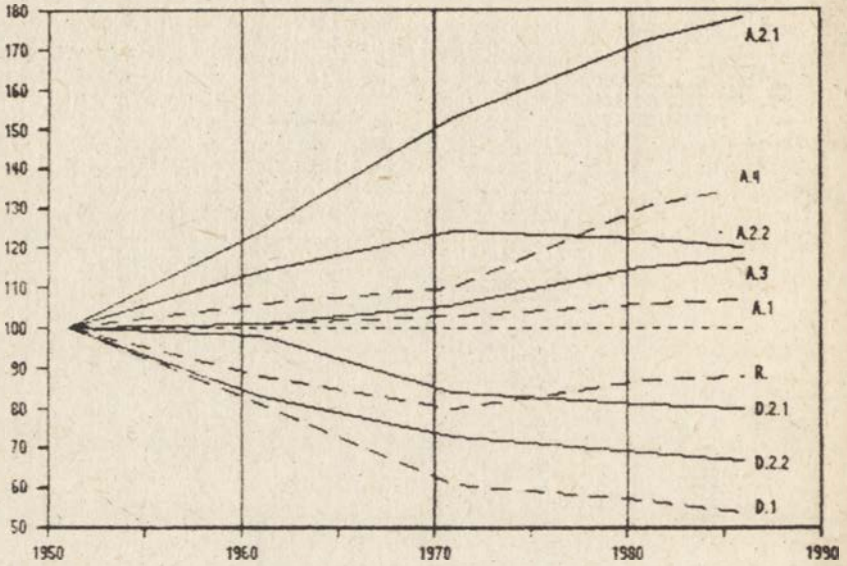


Fig.2. Variation de la population par groupes des communes (1951=100).

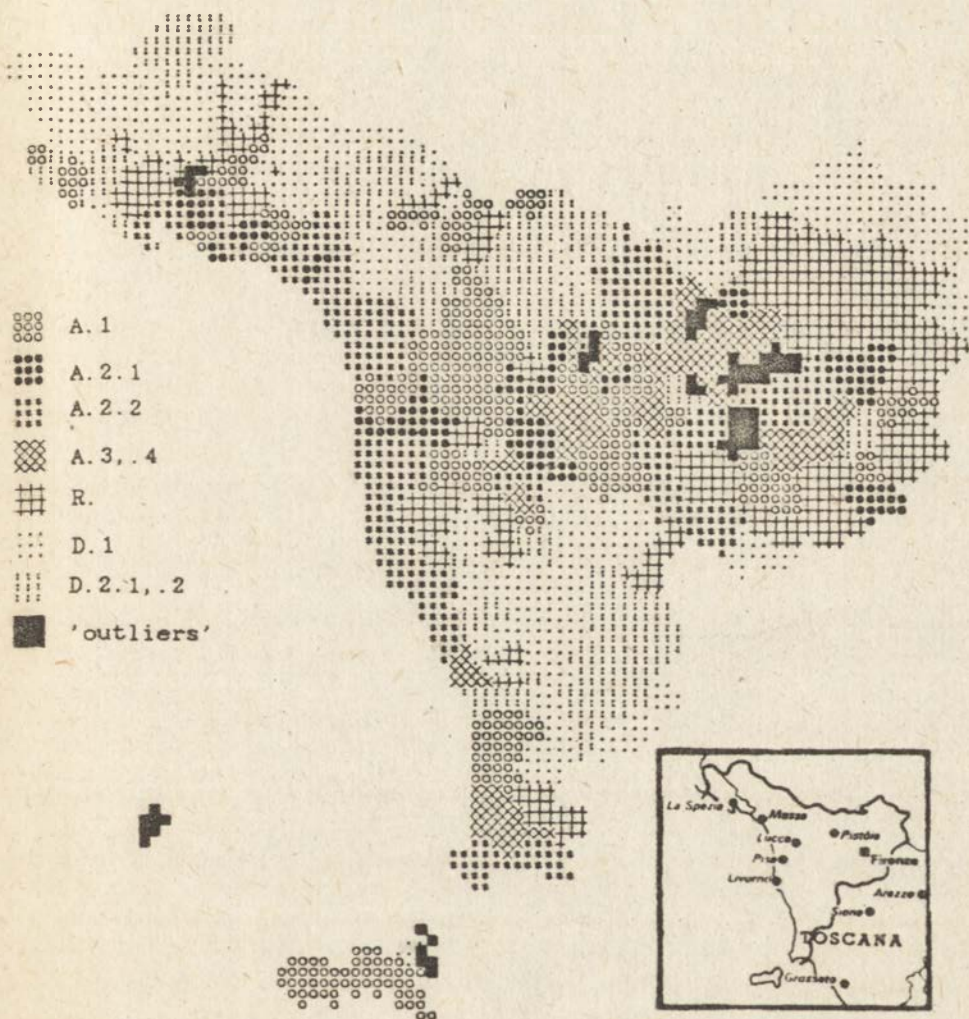


Fig.3. Types de variation demographique
 (pour les codes des types voir table 1).

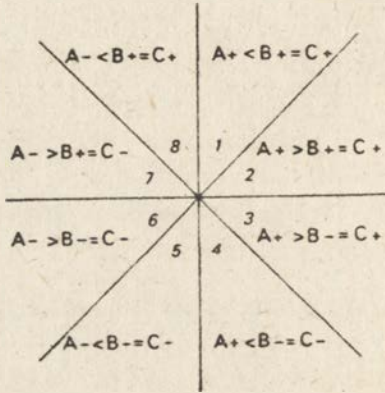


Fig. 4. Types d'évolution démographique
(A - solde naturel; B - solde migratoire;
C - solde global).

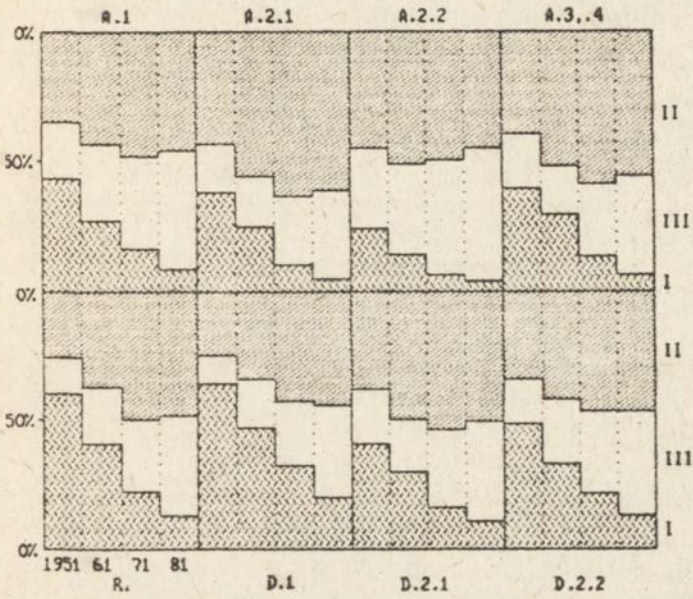


Fig.5. Structure de la population active
(I agriculture, II industrie, III commerce et services).

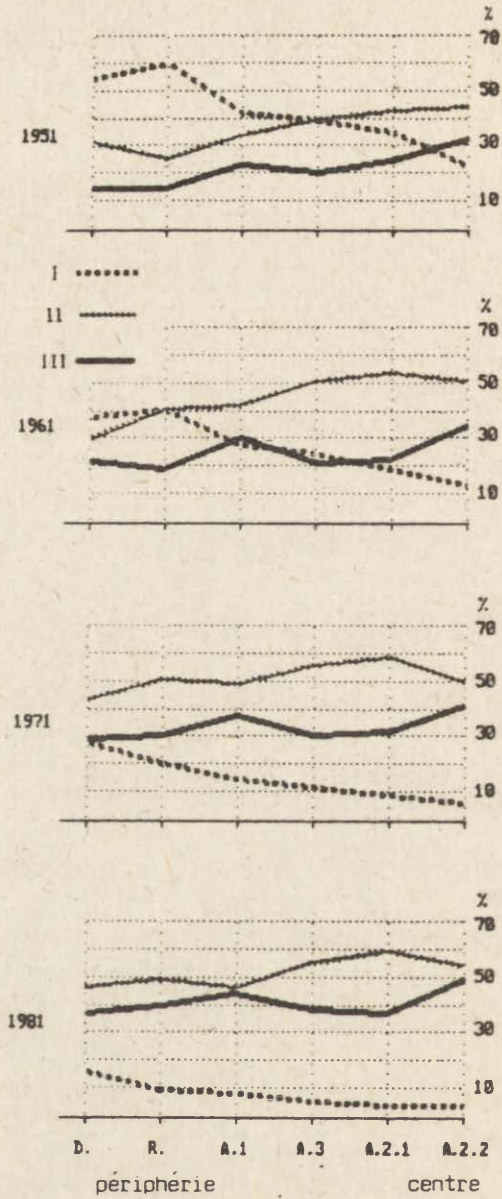


Fig. 6. Profil centre-périphérie selon la structure de la population active.

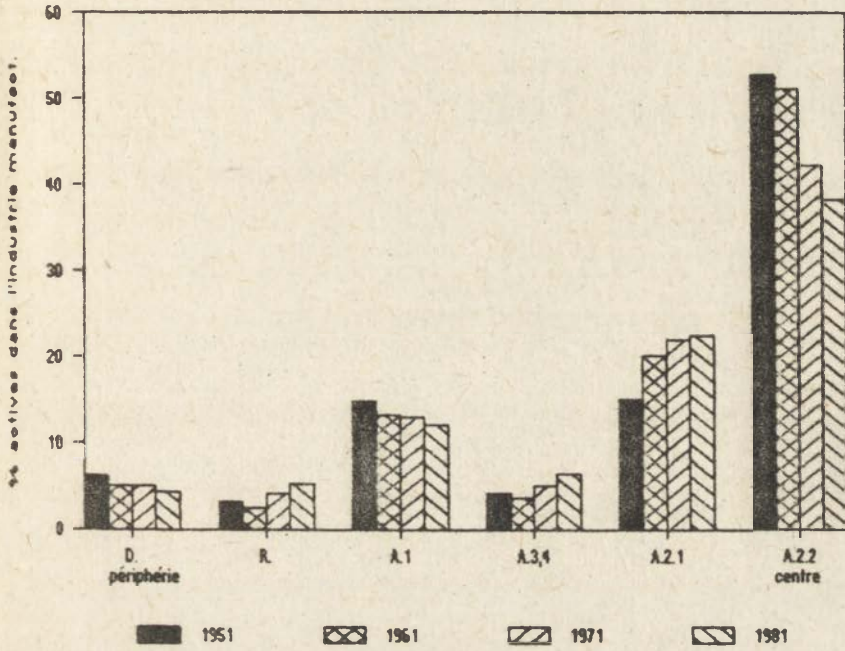


Fig.7. Pourcentage d'actifs dans l'industrie manufacturière par groupes des communes (région = 100).

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SPATIAL CONFLICTS RESULTING FROM URBANIZATION
OF RURAL AREAS OF THE WARSAW AGGLOMERATION

1. Introduction

The progress of society is accompanied by increasingly intensive urbanization and industrialization, generating additional demand for geographical space. Simultaneously the finite nature of space availability results in ever more intensive exploitation and expansion into previously uninhabitable areas. Locally this is seen in the construction of houses on water, luxury underwater hotels, sky-scrapers (both for homes and offices) and settlements in uninhabitable territories e.g. the far North. Modern man has also penetrated the Earth's crust, looking for new natural resources and for other attractive areas (see Fig. 1). The search for new inhabitable regions has been a source of various wars and conquests, on both local and even intercontinental scales.

The demand for land increases if state boundaries are regarded as permanent. In post-World War II Poland for example, industry (which was neither cost-effective or efficient in its utilization of space) was regarded as the driving power and panacea for all previous socio-economic shortcomings and difficulties. This led to a sudden migration of people from rural to urban areas, as well as to the urbanization of the countryside. The latter was particularly true for the rural areas around growing economic centres (both new and old), including urban industrial agglomerations. The rapid expansion has resulted in the current situation at the end of the 1980s, with all its associated advantages and disadvantages.

Studies of the balance of land use and conflict areas in Poland (by the Institute of Geography and Spatial Organization of the Polish Academy of Sciences) have led the author to conclude that geographical space should be treated as a commodity. It should have concrete features determining its value for both owners and users. Over the years certain values have become more or less important depending on their need. Free space has become more scarce and hence more valuable as the population expands and man explores new areas. Consequently the efficient use of land has become particularly important. Functional conflicts have arisen between land users as a result of its finite nature and its demand. These conflicts in turn disturb the ecological balance of the environment, which eventually turns against man himself who is their instigator.

The problems are important for geographers (who by definition study spatial distribution) for spatial planners and for related faculties which contribute to the organization of the land¹.

Avoiding a more detailed discussion of the theory involved², one may conclude that human activity in geographical space ought to be subject to constraints. On the one hand these should guarantee equal access to areas, and on the other ensure that it is used appropriately. Impulsive allocation of space may result in disadvantageous changes in the natural environment and hence the disruption of "spatial order". This in turn may lower the quality of life³ in a region, leading to destruction of the heritage. There is also an ethical aspect to impulsive behaviour. Should we decide whether future generations have worse conditions than we inherited? Impulsive behaviour may result in poorer health and lower living standards, making the area less attractive.

In this paper the author describes some conflicts in the Warsaw agglomeration which are interpreted to be functional in nature i.e. conflicts arising from the contradictory interests of numerous economic agents. Attention will focus on the rural areas of this agglomeration where spatial changes are more apparent and conflicts more drastic.

¹ These issues are covered in greater detail in J. Grocholska: *Przestrzeń jako wartość a konfliktogenna działalność człowieka* (Space as an asset which conflicts with human activity, in preparation).

² See other works by J. Grocholska.

³ Neither of these terms, though common, have universally accepted definitions.

2. The Warsaw agglomeration as the study area

Living conditions and well-being in urban agglomerations depend on: the natural environment, housing situation, job availability, facilities and the effectiveness of transport communications. There is also a wide range of feelings and responses which one could collectively term the "social satisfaction", which depend on comfort in life style. Social satisfaction will depend on a choice of housing, employment, and recreation facilities.

The Warsaw agglomeration (the second largest urban centre in Poland⁴) was formed with a strong input from the capital, its core. Without going into the changing fate of Warsaw, it should be mentioned that the city was already a big urban centre at the turn of the 20th century. It fulfilled a dual role in the partitioned Polish state, both as a centre for regional administration and for trade and industry. When Poland regained independence after World War I, Warsaw became the capital for some 27 million people⁵.

The period between the wars brought rapid economic development, accompanied by intensive urbanization and industrialization. This, for example, caused the expansion of road and rail networks, as well as the subdivision of large estates for new housing. Commuting began on a large scale creating havoc in the building industry. In order to resolve the spatial problems of metropolitan Warsaw, studies were undertaken, from which the concept of "Functional Warsaw" evolved (Jan Chmielewski and Szymon Syrkus⁶). This concept was developed further by other authors after World War II and served as the basis for successive spatial plans of the Warsaw agglomeration.

The destruction of Warsaw and the restriction in residential permits seen in the post-war period contributed to the significant rise in the population of the agglomeration. The characteristic feature of the developing macro-region and agglomeration was the formation of a community with a dominant

⁴ The Katowice agglomeration is the largest but lacks a well-defined core.

⁵ At the outbreak of World War II Warsaw had a population of 1.3 million and its agglomeration 1.9 million. At present Warsaw has a population of 1.7 million, while the agglomeration has over 3 million.

⁶ J. Chmielewski and S. Syrkus: Warszawa funkcjonalna (Functional Warsaw) Warszawa SARP 1934.

centre (i.e. Warsaw)⁷. By contrast there has been gross under-investment in the peripheral zones⁸. Research papers in this period coined the phrase "shadow of the capital". This euphemism expresses the shortage of equipment in the social and technical infrastructure of the suburban zones.

Successive changes in administrative boundaries of the Warsaw agglomeration have affected its division into rural and urban areas. One was the unprecedented decree of October 1945, which stipulated that all land belonging to Warsaw in 1939 (i.e. some 140 sq.km.) was to be automatically handed over to the municipality. This decree had and still has numerous consequences for economic land policy in Warsaw. Privately owned areas were taken over in 1951 for redevelopment following the war damage. Thus what was countryside now officially became an urban area called "green Warsaw". Nevertheless it still preserved its agricultural character for a significant period of time. This area expanded three-fold to 446 sq.km. and has since grown further, though recently by smaller amounts.

The Warsaw agglomeration was also affected by reforms in the administrative boundaries of Poland in June 1975. A two-tier administrative system was introduced replacing the previous three-tier one; 49 medium-sized voivodships were formed out of 17 larger ones. The old Warsaw voivodship (which approximated an economic region⁹) was transformed into a much smaller entity¹⁰. Its rather randomly allocated boundaries divided areas that were previously adja-

⁷ A. Stasiak: Introduction to: Problemy funkcjonalnego makroregionu Warszawy (Problems of the functional macroregion of Warsaw, Biuletyn Informacyjny IGiPZ PAN 38, Warszawa 1982, 5-9, and A. Stasiak: Powstanie funkcjonalnego makroregionu Warszawy. Wybrane problemy (Entstehung eines funktionellen Makrobezirks von Warschau. Ausgewählte Probleme), Acta Universitatis Wratislaviensis 801, Historia 51, Wrocław 1987, 257-274.

⁸ See: A. Werwicki: Geografia usług makroregionu funkcjonalnego Warszawy (Geography of services in the functional macroregion of Warsaw), Dokumentacja Geograficzna 1, Warszawa 1987; M. Ciechocińska: Space and living conditions in Poland, Social Indicators Research 20, 1988, 59-77, and Trends in changes of living standards in Poland (1960-1981); An attempt at the defining regional disparities, Geographia Polonica 52, Warszawa 1986, 249-265.

⁹ See, for instance, A. Wróbel, in: Województwo warszawskie. Studium ekonomicznej struktury regionalnej (Warsaw voivodship. A study of economic regional structure), Prace Geograficzne IG PAN 24, 1960, 140.

¹⁰ The old Warsaw voivodship had a surface area of 29,800 sq. km. whilst the present one has an area of only 3,800 sq. km.

cent to each other, depraving Warsaw of its true hinterland. A. Stasiak and his collaborators (of the Institute of Geography and Spatial Organization of the Polish Academy of Sciences) studied the functional macroregion in the early 1980s, to determine the true limits of Warsaw¹¹. The present author, on the other hand, undertook more detailed studies on chosen conflict areas and the economy of land use of the Warsaw agglomeration. For simplicity's sake, the term capital voivodship and Warsaw agglomeration are used interchangeably¹². The data in Tables 1 and 2 illustrates the alterations in land use resulting from urbanization and industrialization in the Warsaw voivodship between 1976-1988. They show a progressive reduction in proportion of agricultural land as farming becomes more intensive and productive. Despite the legislation¹³, agricultural land is usually taken over for housing¹⁴, industry, transport, woodland¹⁵ and less often for services. 13,900 hectares of agricultural land were lost between 1976-1988. By contrast, areas designated for transport and communication and settlements increased significantly, (by 2,700 hectares and 8,200 hectares respectively).

The comparison between urban and rural areas is particularly interesting. It shows that towns have lost quite a large portion of agricultural land (2,400 hectares), the proportion of agricultural land in towns and rural areas remains relatively high (32.1% and 61.9% respectively). This suggests that town boundaries are usually set with a large reserve for future urban development.

¹¹ See joint papers published in volumes 38(1982), 43(1983), 48(1985) and 53(1986) of *Biuletyn Informacyjny IGiPZ PAN* and numerous other individual publications.

¹² This assumption allows all methodological discussion (focussing on the problem of the extent of agglomeration boundaries) to be avoided, making statistical data for the voivodship available for interpretation.

¹³ Law of 26th March, 1982 protecting woodland and agricultural land, and the decree of the Council of Ministers of 28th June, 1982 concerning the execution of this law. Both documents were published in *Oziennik Ustaw (Legal Journal)*.

¹⁴ In land use terms this includes greenery for parks, cemeteries etc.

¹⁵ The changes from agricultural to woodland arise in part from the utilisation of poor soils, as well as plans to expand woodland in the Kampinos National Park (KNP).

It is important to stress, however, that the use an area is put to, is regarded both a measure of its function and of human activity. Nevertheless, in reality the changes in land use seen in the two tables are less marked. The tables do not consider changes in quality (e.g. from high-rise blocks of flats to houses, or even more intensive farming).

Particularly important changes are taking place in rural areas. The Polish countryside, which used to be quite homogeneous, has now become a polyfunctional area as a result of various socio-economic activities. This polifunctional nature is at present the characteristic feature of rural areas¹⁶, particularly those around large agglomerations.

Rural areas in the vicinity of urban agglomerations are presently under strong anthropopressure from the urban population, in this case in Warsaw. This anthropogenic pressure takes various forms. In the past, one of the most important attributes of the rural areas was, besides location, soil quality. At present, when more leisure time is spent away from home, unproductive land (as well as less fertile fields and woodlands) have become attractive sites for recreation and summer houses. It is however very important that these summer houses are constructed in suitable areas, designated according to the plans for spatial organization.

3. Characteristics of conflicts observed in selected areas of the Warsaw agglomeration

Land differs from area to area in, for example, 1) the nature of its environment, 2) natural resources, 3) man-made products and 4) site in relation to the technical and social infrastructure. Its value is determined by these features giving reasonable grounds for conflicts.

The root cause of these conflicts is the polyfunctional nature of the land. Alternatively such conflicts arise when a function over-develops and outgrows its constraints. In the event of a conflict arising, one solution might be to define the main role of a region, making all others subordinate

¹⁶ Several authors have commented on this: J. Kostrowicki, *Obszary wiejskie jako przestrzeń wielofunkcyjna. Zagadnienia badawcze i planistyczne* (The multifunctional nature of rural areas; the problems of research and planning), *Przegląd Geograficzny* 48, 4, Warszawa 1976, 601-611, and W. Stola, *Klasyfikacja funkcjonalna obszarów wiejskich Polski. Próba metodyczna* (A study in functional classification of rural areas in Poland), *Prace Habilitacyjne IGiPZ PAN*, Ossolineum 1987.

to it. This role, however, should have limits set for its development, which take into account its detrimental features, both in view of itself and the environment.

Large urban agglomerations are meeting points for various (often contradictory) functions, which reflect human activity. The conflicts that arise in these areas appear as detrimental changes in the environment, and eventually contribute to the decline in the health of the local population. Warsaw is one such agglomeration. The above-mentioned studies identify three conflicting regions: 1. the Northern, 2. the Western, and 3. the Southern conflict regions.

3.1. Characteristics of the Northern region

This area comprises the Kampinos National Park (KNP) and its surrounding areas i.e. seven "gmina" and a few of the Western districts of Warsaw (see Fig. 2). The Kampinos National Park was created in 1959 following a special decree which granted it the status of a nature reserve¹⁷. Nevertheless this decision does not provide adequate protection from the numerous threats made by an agglomeration of over 2 million inhabitants and inappropriate exploitation of the Park.

The territory of the Kampinos National Park has been changed significantly in the past. These changes were caused by irresponsible actions such as excessive tree felling, over exploitation of poor soils, road construction and the littering of woodland. Further damage was done by inappropriate drainage following a variety of agricultural miscalculations.

Tourism plays an important role in the Park. In view of the fact that the Park constitutes an unique nature reserve which has been preserved over hundreds of years, it should serve primarily as a source for scientific studies and other educational purposes. Tourism should be restricted to selected paths.

A special protective zone, the so-called "envelope", was created around the Park to ensure the adequate functioning of the natural environment. This protects it from the various harmful influences which arise as a direct result of its proximity to a large agglomeration. The envelope covers a significant surface area which includes a part of Western Warsaw, making the reserve an ecoregion of some 70,000 hectares. The projected plan is to protect the area

¹⁷ In 1988 Park was composed of 35,000 hectares of nature reserve, on 4,200 of which all agriculture and plantation are forbidden.

from excessive capital investments. In this way certain guidelines for the use of the envelope have been proposed, though the full legislation has not yet been passed.

Despite this there are a number of institutions which threaten the development of the Kampinos Forest ecosystem. (These include the Institute of Ecology (!) of the Polish Academy of Sciences, the Children's Hospital in Dziekanów Leśny, the Artificial Fibre Plant in Sochaczew-Chodaków and several other, none of which adequately deal with their waste products). Some companies responsible for pollution (eg. the tanners in Truskaw) have already been closed down following pressure from environmental pressure groups. The Eastern part of the Park is under greatest threat, where industrial, settlement and transport damage is greatest¹⁸. This damage is manifest as a shorter leaf cycle in coniferous trees which lose their foliage faster than usual.

Finally the Kampinos National Park ecosystem and its envelope perform an important role as an aerating and oxygenating channel for the North-Western part of the Warsaw agglomeration. For this reason every effort should be made to protect the region from the thoughtless human destruction of industry and motorisation.

3.2. Characteristics of Western conflict region

The Western conflict region consists of a set of gmina and towns arounded Warsaw. It was formed following the building of the Warsaw-Łowicz-Poznań railway line in 1845. The region developed rapidly after the electric railway commuter line and the Warsaw-Łowicz-Poznań highway were built. Pruszków is at the centre of this region. A combination of relatively cheap land and good communication with Warsaw meant that even before the War this area was regarded a good site for housing and industry. The "garden-town" of Komorów is an example.

The urban area of Pruszków has the greatest number of conflicts¹⁹, though many are also seen in the other towns and communities of the Western belt. The fundamental problem is of conflicting interests. On the one hand this is a

¹⁸ Forest litter and tree mosses in the area have high levels of heavy metals.

¹⁹ This area covers Pruszków, Piastów and adjacent rural land.

well-developed and highly productive agricultural region (the Błonie Plain grade II and III soils) whose produce is partly used for export; on the other it is a good location for residential estates such as the well-developed ones in Milanówek, Komorów, Podkowa Leśna and to a certain extent Brwinów. The heavy industry in the vicinity creates big problems for housing and agriculture.

Industrial development and the associated new jobs make it either necessary to have additional housing in the urban area (or sector), or else to have large numbers of commuters. This in turn results in agricultural regions being taken over for housing estates, particularly flats which allow a higher population per square metre. The demand for new land and its accompanying capital investments mean that once again rural areas are sacrificed for housing. These investments need to be accompanied by a wide range of services and supportive technical infrastructure.

However the region also has fertile grade II and III soils. Farmers and agriculture's authorities strongly object to the exploitation of this area, maintaining that it supplies food essential for the Warsaw agglomeration. Thus serious conflicts arise - a dilemma for spatial planners trying to organize the area.

3.3. Characteristics of the Southern conflict region

The Southern conflict region is formed by four rural gmina together with the towns of Konstancin-Jeziorna, Piaseczno and Góra Kalwaria. The Prażmów gmina is a potential conflict area if (as planned) it gets left with functions that are unwanted elsewhere. These include rubbish dumps (for the entire west side of the Warsaw voivodship), an asphalt plant and a depot for washing railway carriages, all of which are disruptive to the neighbourhood and environment.

One of the fundamental issues in the region is the conflicting interest of (a) developing industry (such as Polkolor, an electronic company near Piaseczno producing tubes for colour televisions) (b) the needs of Konstancin-Jeziorna (c) its inhabitants and (d) its role as a health resort serving the needs of Warsaw. Although the electronic industry is not in itself regarded as harmful, it could constitute a threat in the event of an accident, not to mention the risk of pollution from the supporting industry.

Konstancin became an official health resort in 1972 following the discovery of hydrothermic salts²⁰. The influx of people into the region following the war-time destruction of Warsaw created great housing difficulties. Deserted houses lost their value. Pressure from the inhabitants of Konstancin demanding new areas for housing disagreed with its function as a health resort.

Other issues in the region are also at stake. There is the pollution from health resort facilities, industrial plants, and noise from aircraft flying over head all of which disagree with the need to protect the rich soil. By considering all these problems, one can begin to understand the conflicts that need to be resolved in the spatial planning of this region.

²⁰ Konstancin has been a health resort since the beginning of the 20th century. The discovery supported its existence resulting in secondary capital investments such as the saline graduation towers built in 1979. This type of secondary investment is only the second since Ciechocinek.

Table 1. Changes in land use in the Warsaw voivodship (in thousands of hectares)

Land use	Surface area for each year											
	Voivodship (total)				Urban				Rural			
	1976	1980	1985	1988	1976	1980	1985	1988	1976	1980	1985	1988
Voivodship (total)	379.4	379.4	378.7	378.7	96.6	100.3	100.3	100.3	282.6	278.8	278.4	278.4
Agricultural	218.4	215.5	208.0	204.5	34.6	35.5	32.5	32.2	183.8	180.0	175.5	172.3
Woodland	86.3	86.5	89.3	91.5	17.7	18.3	18.3	18.3	68.6	68.2	71.0	73.2
Waters	14.8	14.4	14.2	13.9	3.4	3.8	3.8	3.7	11.4	10.6	10.4	10.2
Mining	0.1	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1
Transport areas	15.7	16.8	18.2	18.4	8.9	9.3	10.4	10.5	6.8	7.5	7.8	7.9
Settlements	26.4	28.6	33.4	34.6	20.1	21.9	25.2	25.5	6.3	6.7	8.2	9.1
Other	12.6	12.0	10.4	10.6	10.2	9.9	8.6	8.6	2.4	2.1	1.8	2.0
Wasteland	5.1	5.1	5.1	5.1	1.7	1.5	1.5	1.5	3.4	3.6	3.6	3.6

Source: Own calculation based on data for 1st January for given year.

Table 2. Changes in land use in the Warsaw voivodship (in %)

Land use	Surface area for each year											
	Voivodship (total)				Urban				Rural			
	1976	1980	1985	1988	1976	1980	1985	1988	1976	1980	1985	1988
Voivodship (total)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agricultural	57.6	56.9	54.9	54.0	35.8	35.4	32.4	32.1	65.0	64.6	63.1	61.9
Woodland	22.8	22.8	23.6	24.2	18.3	18.2	18.2	18.2	24.3	24.5	25.5	26.3
Waters	3.9	3.8	3.8	3.7	3.5	3.8	3.8	3.7	4.0	3.8	3.7	3.7
Mining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Transport areas	4.1	4.4	4.8	4.9	9.2	9.3	10.4	10.5	2.4	2.7	2.8	2.8
Settlements	7.0	7.5	8.8	9.1	20.8	21.9	25.1	25.4	2.2	2.4	3.0	3.3
Other	3.3	3.2	2.8	2.8	10.6	9.9	8.6	8.6	0.9	0.7	0.6	0.7
Wasteland	1.3	1.4	1.3	1.3	1.8	1.5	1.5	1.5	1.2	1.3	1.3	1.3

Source: See Table 1.

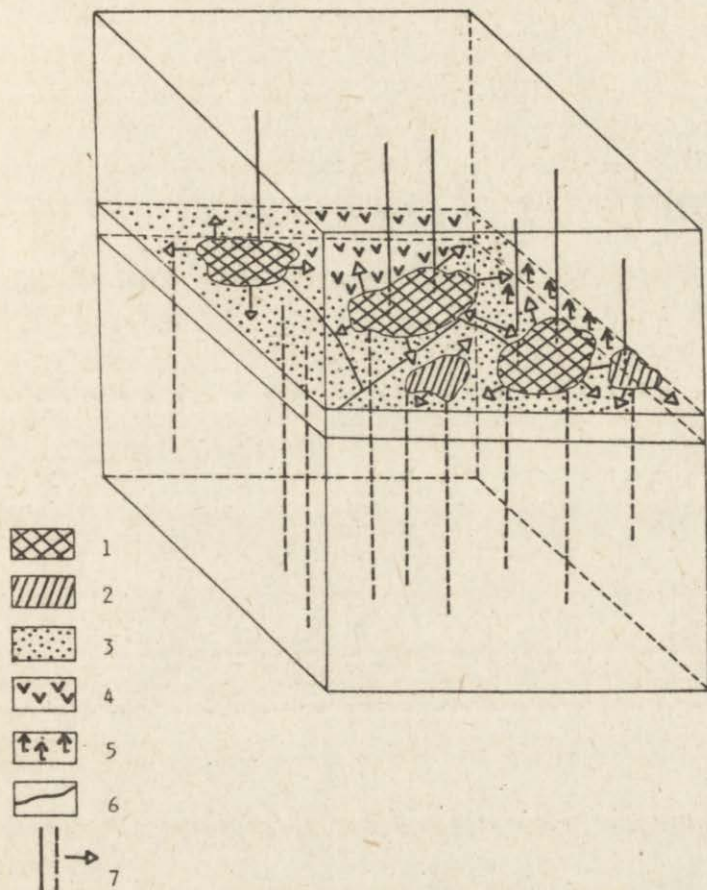


Fig. 1. Expansion of different human's activities in the three dimensions space:

- 1 - settlement areas, 2 - industry, 3 - arable lands,
- 4 - meadows and pastures, 5 - forestry, 6 - roads,
- 7 - different directions of human's expansion.



Fig. 2. Analysed conflict areas within Warsaw voivodship (province):

- 1 - Warsaw voivodship boundaries, 2 - Warsaw city boundaries,
- 3 - boundaries of town and gmina*, 4 - town, 5 - gmina centres.

Areas under analysis:

- 6 - northern area (Kampinos National Park and its envelope zone),
- 7 - southern area, 8 - western area.

* gmina - commune or township

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AGRICULTURE IN THE ZONE OF INFLUENCE
OF THE WARSAW AGGLOMERATION

Areas located in the vicinity of large agglomerations are most often characterized by a concentration of multiple functions (such as agriculture, settlements, industry, transport and communication) - and a more intensive development of one of these functions proceeds at the expense of the others¹. That is why more and more often in the countries featuring a high level of development of transport facilities, intensive agricultural production systems are located there, where the natural conditions are most advantageous.

Inadequate development of the facilities intended for the transport of agricultural produce causes the production of those goods which cannot be transported for a long time or over long distances (such as vegetables, fruits, flowers) to be located in the vicinity of larger markets, generating high demand. Such high levels of demand for these products, generated by strongly urbanized areas, but characterized by not too advantageous soil conditions lead to agricultural production costs that are higher than in other places, located further from large agglomerations. On the other hand, the hinterlands of large towns, where orchards and vegetable gardens take important shares in the land use and production patterns, are also characterized by higher land and capital productivities and higher commerciality as well as higher degree of specialization of agriculture than other areas of a country. An example of such type of agriculture is provided by the Warsaw suburban zone.

¹ Geographical problems of suburban zones are treated in more details in S. Liszewski 1987, 65-79.

The present report is based upon data published by the voivodships' statistical offices and upon information gathered during field studies conducted within the suburban zone of Warsaw in the years 1986 and 1987².

The area considered encompasses 116 gmina (commune or township), located in the Warsaw capital voivodship and in the neighbouring voivodships (Fig. 1).

Private land ownership dominates in the agriculture of the area considered. Private farming accounted in 1986 for 79.1% of the agricultural land surface in the Warsaw voivodship. Socialized agriculture occupied in the same year a mere 14.3% of which state farms accounted for 7.7% and cooperative farms 4.4%.

The structure of private farming within the area considered is characterized by the domination of small farms, having less than 5 hectares, and in the central part of this area even smaller farms - less than 3 hectares on the average - dominate. Farms of less than 5 hectares of surface accounted in 1986 for 75% of the total number and 40% of the total land under private ownership in the Warsaw voivodship. The average area of farms was somewhat greater (5-7 hectares) to the East of Warsaw (Siedlce voivodship) and in the orchard zone of the Radom voivodship. The highest average area of farms in the area studied (7-10 hectares) occurred in the Ciechanów and Ostrołęka voivodships.

Small farms, located in the suburban zone of Warsaw, particularly those specializing in fruit, flowers and vegetable production, featured high output levels, both per person employed in agriculture and per unit of agricultural land (Fig. 10). The commercialization of agricultural production was very high here as well. For example, the sales to the state outlets for agricultural produce purchase in Warsaw voivodship in 1986 were the highest in the country, amounting to 131.5 thousand zlotys per hectare of agricultural land, while the national average was 80.4 thousand zlotys. It could be estimated on the basis of field studies conducted within the suburban zone of Warsaw in the years 1986 and 1987 that the value of the sales-oriented produce in the farms specializing in field vegetable production amounted to 400-700 thousand zlotys per hectare, in the farms specializing in orchard and vegetable garden production this value amounted to some 500 thousand zlotys per hectare, while it

² Besides the two authors of the present report, Professor W.B. Morgan of King's College in London was also involved in the conduct of the field study, which resulted in some 40 interviews carried out in various types of farms; see: W.B. Morgan, S. Gałczyńska, R. Kulikowski, 1987.

was even higher in the farms specializing in the greenhouse production of vegetables or flowers.

The levels of capital investment for agricultural production in Warsaw voivodship are also amongst the highest in the country, amounting to 22.2 thousand zlotys per hectare of agricultural land in 1986, when the national average was 14.7 thousand zlotys.

On the other hand, the value of agricultural production constituted a mere 3% of the total national income generated within the Warsaw voivodship. The position of agriculture in the area investigated can better be illustrated by the shares taken in the national production of particular products - for vegetables, approximately 9.5%, and for fruit - more than 30%.

The vicinity of the great urban agglomeration (Warsaw and 48 other towns in the area studied) - shapes the demographic processes taking place in the rural areas. The well developed industry of the Warsaw region and the advantageous transport system make it possible for 213 thousand people to commute daily to their jobs out of which 141 thousand commute to Warsaw itself³. This commuting applies also to the agricultural population in 1983. The bi-occupational (peasant-worker) population constituted 48.4% of the total⁴. Of those, 38.4% worked both in agriculture and industry, and the rest worked mainly in construction while maintaining their farms.

High percentages population with bi-occupational status occur in the investigated units located on the Western edge of the Warsaw voivodship, in its North-Eastern and South-Eastern parts and in the units located along the railroad lines to Łódź, Poznań, Białystok and Terespol.

Small farms of up to 2 hectares dominate among the bi-occupational households, constituting more than half of the total number of bi-occupational farms in our area.

On the other hand, the highest share of people employed in agriculture, above 60%, was found in the gmina located in the North-Western part of the area studied. It was also highly characteristic that there was only a very small decline in agricultural employment in those units which specialized very intensively in field vegetable production, located directly to the West of

³ According to "Spis kadrowy 1983. Dojeżdżający do pracy" (Skill census 1983. Commuters). WUS Warszawa, series: Analizy i Informacje Branżowe.

⁴ After W. Zgliński 1985, 91. Table 2.

Warsaw, and also to the north to Jabłonna, which specializes in greenhouse flowers production.

In spite of the strong attraction of the Warsaw labour market, the benefits acquired from work in agriculture in these last areas are sufficiently great to counteract the population outflow from agriculture. Simultaneously, the studied units mentioned have the highest agricultural employment per 100 hectares of agricultural land (more than 40)⁵.

One of the characteristic properties of agriculture in the suburban zone of Warsaw is the high share of persons with better than primary education among those working in agriculture. This share, within the agricultural areas of Warsaw and Jabłonna gmina, was more than 30%, and in these units where the field vegetables production dominates - located directly to West of Warsaw - 25-30%. In some areas specializing in fruit production, located to the south, it ranged from 10 to 25% (the national average was approximately 12%)⁶.

The areas of agricultural land are shrinking within the territory studied due to the expansion of urban and industrial activities. In the Warsaw voivodship the total surface of agricultural land diminished from 213.3 thousand hectares in 1975 to 200.2 thousand hectares in 1980, and to 199 thousand hectares in 1986. Especially acute for agriculture were those losses of agricultural land which resulted from the town's expansion in a Westerly direction, where some of the best soils were lost together with highly intensive production.

Agricultural land in the area studied was mostly arable. However the arable percentages in the investigated units differ considerably ranging from less than 60% in Celestynów and in the Kampinos Forest (Tułowice, Leoncin, Czosnów), to more than 80% in the areas with better soils to the West of Warsaw: Low shares of arable land in the districts with better soils result primarily from high percentages of permanent grass (over 40%), or as in the case of Góra Kalwaria, South of Warsaw, from a high percentage of orchard (more than 20%).

It is also characteristic of agriculture in the suburban zone of Warsaw that the percentages of land in orchards and gardens (fruit trees, berries,

⁵ For more details see B. Gałczyńska, R. Kulikowski 1982, 17-23 and Figs 3, 4, 5.

⁶ See also B. Gałczyńska, R. Kulikowski 1986, Fig. 1.

vegetables, flowers) are very high. The spatial differentiation of this particular feature with regard to private farming in the area in 1987 is presented in Figs 4 and 5. Naturally, these shares are highest in the areas specializing in fruit production in the southern part of the agricultural suburban zone of Warsaw within the Radom voivodship (Belsk Duży, 59.7% and Warka, 56.9%), as well as in the areas specializing in field vegetable production (e.g. Ożarów Mazowiecki, 58.3%).

As far as the value of gross production is concerned, plant production dominates, and its share for the Warsaw voivodship in 1986 was more than 65%. In gmina specializing in field vegetable production, encompassing the central part of the area studied plant production exceeded 70% of the total value of production, and attained in the gmina of: Jabłonna (greenhouse flower production specialization) 93.4%, and Ożarów Mazowiecki (vegetable specialization) - 90.5%.

In the areas oriented to horticulture essential differences in the character and functions of rural settlement system occur. During the last 25-30 years a very dense network of wholesale purchase points for such produce as vegetables, flowers and fruits has been organized, primarily by the Warsaw Horticultural Cooperative which not only organizes the wholesale purchase of these agricultural products, but also provides supplies most production resources (mainly fertilizers, pesticides and herbicides). This cooperative is, in addition, responsible the organization of the export of horticultural products, and additional agricultural training for its members. In the areas specializing in horticultural products traditional farmyards with a barn, stable, pigsty are disappearing, and in their place have appeared larger, well equipped and functional, though perhaps esthetically less pleasing, family houses accompanied by such buildings as warehouses for vegetables, or cold storage facilities for fruits and flowers, as well as general purpose agricultural stores.

As already mentioned the agriculture of the suburban zone of Warsaw is characterized by a high level of agricultural production specialization⁷. In

⁷ The specialization level index used by the present authors is defined by the following formula $L_i = \sum_{j=1}^n a_{ij} \cdot l_j$, where L is the specialization level index, a_{ij} is the share of a given product in the total saleable product value of a given geographic unit, n is the number of products, l is the commerciality level, i.e. the value of total saleable agricultural produce per 1 hectare of agricultural land.

the areas specializing in horticulture specialization index values range from 400 to 1300 and even to more than 1500 in the gmina of Błędów, Belsk Duży and Warka where fruit production is at its highest level (the national average of this index is 215). Even higher levels in the specialization index are attained in that part of the suburban zone which specializes in field vegetable production (Ozarów Mazowiecki, 2748, Michałowice, 1601, Brwinów, 917, Raszyn, 875) and in flowers production (Jabłonna, 2798). Other units featuring high values for the specialization index are located in the North-Western part of the area studied and specialize in berries (e.g. Czerwińsk on Vistula, 610, and Załuski, 351).

As previously mentioned, a high degree of specialization in agricultural production is attained in the suburban zone of Warsaw within the areas oriented to vegetable, fruit and flowers production.

Horticulture in the Warsaw region has a high national importance. The Warsaw, voivodship accounts for a mere 1.1% of the country's agricultural land but provides some 8.5% of the country's overall vegetable production. Besides the metropolitan Warsaw market, where a significant part of vegetables produced in this region is sold, sub-Warsaw horticulture sells its vegetables and other products to other areas of the country, primarily to the Upper-Silesian agglomeration and to the agglomeration of Gdańsk-Gdynia-Sopot. Some vegetables especially onions, are exported.

Areas under vegetables increased after World War II, reaching the level of approximately 15 thousand hectares, and this level has been maintained with small fluctuations until now. The spatial distribution of vegetable production in the suburban zone of Warsaw is shown in Fig. 4.

A great majority of vegetables in the Warsaw, capital voivodship is produced by private farmers (about 98% of crop area and product volume in 1986). Only 1.6% of the overall area under field vegetables belonged in the same year to state farms, and even less - 0.4% - to the cooperative farms.

Within the surface structure of field vegetables grown the greatest shares went to cabbage (18.3%), onions (17.2%) and carrots (16.2%), the other surface-wise significant vegetables were cucumbers (9.2%), red beets (7.2%) and parsley (6.5%), while celery and leek, take less land.

An example of a well organized and intensively operating vegetable oriented farm was provided by a 24 hectare unit, where the authors interviewed the owner. It was located in the northern part of the area studied and permanently employed 3 people plus some 30 seasonal workers hired for 2 to 3 weeks each

year. The soils were average. Onions were dominant, taking 11 hectares, including 3 hectares of seed onion, 4 hectares were under cucumbers and 0.5 hectares under tomatoes.

The crop rotation scheme included the vegetables together with wheat (6 hectares) and plants grown as green fertilizers (2.5 hectares). There was comprehensive machine equipment for cultivation and harvesting. Saleable production value within this farm could be assessed at over 600 thousand zlotys per hectare of agricultural land, while the national average in 1986 year was 72.2 thousand zlotys.

An essential complement to field vegetable growing in the Warsaw voivodship is constituted by protected vegetable production accounting, in 1984, for the following shares in appropriate totals for Poland: 13.8% for greenhouses, 23.7% for glass frames and 9.1% for high plastic tunnels.

There were 15.6 thousand sq. mts of greenhouses in the Warsaw voivodship in 1983, 60% occupied by vegetables. Out of the greenhouse - grown vegetables the greatest area was taken in that year by tomatoes (25%) and cucumbers (12.3%).

The total area of plastic tunnels increased from 453 thousand sq. mts in 1977 to 1141 thousand in 1983 - 90% was taken by vegetables. However, the area of garden frames has decreased significantly in Warsaw voivodship - from 775 thousand sq. mts in 1977 to 286 thousand sq. mts in 1983.

Fruit growing was one of the most important branches of plant production within the area studied. Inside the boundaries of the area, shown in Fig. 1, as much as 35% of the total national production was taking place in 1986.

The spatial distribution of orchards and gardens within the area studied is shown in Fig. 5.

Fruit production was concentrated largely in private farming, which provided in 1986 94.5% of the tree fruits harvested in the Warsaw voivodship and 99.6% of all the berries.

Since tree fruits in the suburban zone of Warsaw are grown mostly in well kept, large commercial orchards, the fruit yields from one tree and from 1 hectare of agricultural land are amongst the highest in the country. In those regions where fruit production orientation is the most pronounced, i.e. in the Southern part of the area studied (Fig. 6) the fruit yields per hectare of agricultural land were in 1983 from 3-5000 kgs and even above 5000 kgs (while the national average was only a little more than 114 kgs). As these studies

show, the yields from intensive orchard production in this zone attain from 5 thousand kgs of fruits per hectare in old orchards up to 40 thousand kgs in modern, young, but already fully productive orchards. In one of the several horticultural farms studied (total area of this farm - 31 hectares, productive orchards totalled 22 hectares, out of which 7 hectares were occupied by old orchards and 15 hectares by intensive young orchards). The overall fruit production was estimated at some 750 tons (approximately 24 thousand kgs per hectare of agricultural land on the farm). The farm employed 6 people permanently and additionally some 40 people were hired seasonally for about 1 1/2 month a year. There was cold storage facility on the farm, having a capacity of up to 900 tons, in which apples could be stored until May. There was a high degree of mechanization on the farm, so that only fruit picking and tree thinning were done manually. Fruit transport was provided by 2 lorries. Most fruit was exported to the USSR and some to the countries of Western Europe (Fed. Rep. of Germany, United Kingdom).

Tree fruit production is largely complemented in the area studied by the production of soft fruit (Figs 7,8,9). 20-30 years ago the latter was concentrated nearer Warsaw. However, because of the high labour demand and acute competition for labour in the Warsaw region soft fruit cultivation moved away from Warsaw along the Vistula valley, to the North-West and South. On these farms where interviewed the soft fruit occupied only small areas (commonly only 0.5 hectare), but because of its high profitability, soft fruit production was usually the most important element in commercial production on these farms.

Finally, flowers production constitutes an important branch of plant production in the Warsaw voivodship, accounting for 6.5%⁸. This production occurs mainly in greenhouses, and is highly concentrated in the Jabłonna gmina to the North of Warsaw. The global value of flower production in Jabłonna in 1977 was over 60 thousand zlotys per hectare of agricultural land, and in the units located directly to the West and South of Warsaw it amounted to 3-5000 and 5-10 000 zlotys per hectare of agricultural land, respectively. Quite an important share of flowers production comes from the state farms, and especially from the Joint Horticultural Farm, Mysiadło⁹, located to the South of Warsaw.

⁸ According to B.Gałczyńska, R.Kulikowski 1982, 64.

⁹ Out of the total area of 36 hectares covered by greenhouses owned by the Joint Horticultural Farm Mysiadło 9 hectares are used for flower production (mainly carnations, gerberas and roses).

Flowers production in the Warsaw region fully satisfies the demand generated by the Warsaw agglomeration - and the surplus is exported to other countries, primarily to the USSR.

Agriculture specialization in the suburban zone of Warsaw, consisting mainly of intensive horticulture is highly productive (Fig. 10) and highly commercial. The commercial value (Fig. 11) reached in some gmina up to 80% or even more than 90% of total value (national average being at 51%).

Because of the high value of fixed assets in agriculture in this area and the food provision function carried out with regard to Warsaw agglomeration, the agriculture of the area studied should be subject to special protection from the state and all the decisions leading to giving over of agricultural land for other uses should be taken with particular care.

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Fig. 1. Administrative division of the investigated area 1980.

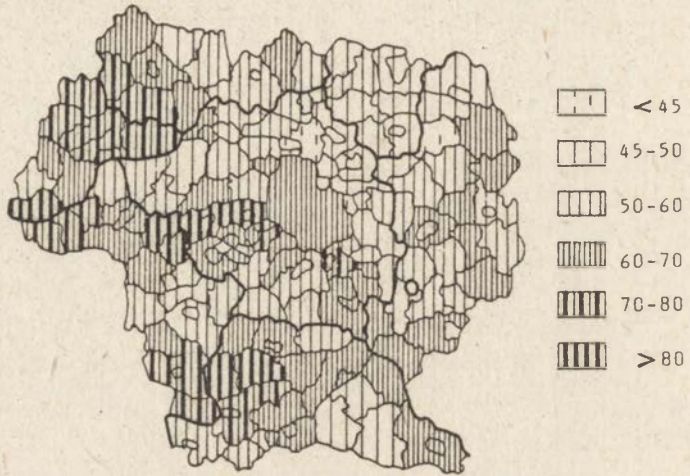


Fig. 2. Qualification of productive agricultural space measured by the general quality indicator of productive agricultural space.

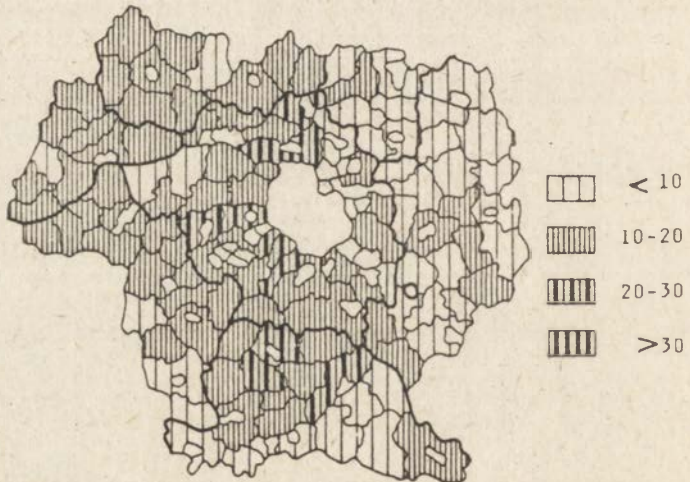


Fig. 3. Percentage of people with above primary education in the total number of the actively employed in own farms. Individual agriculture 1978.

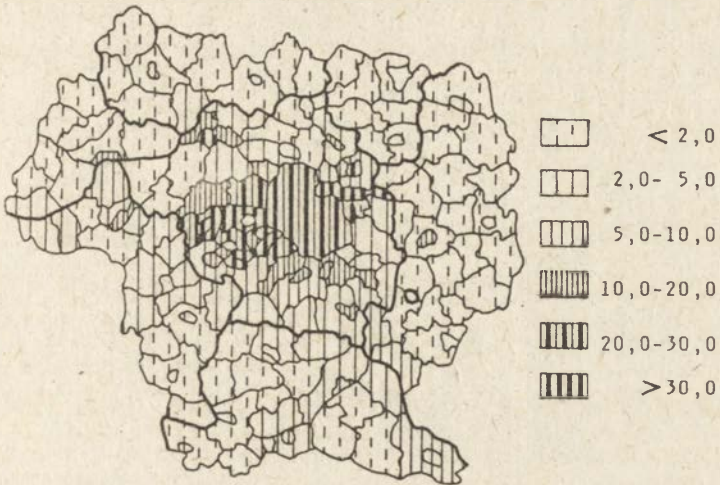


Fig. 4. Vegetables as a percentage of sowing area. Individual agriculture 1987.

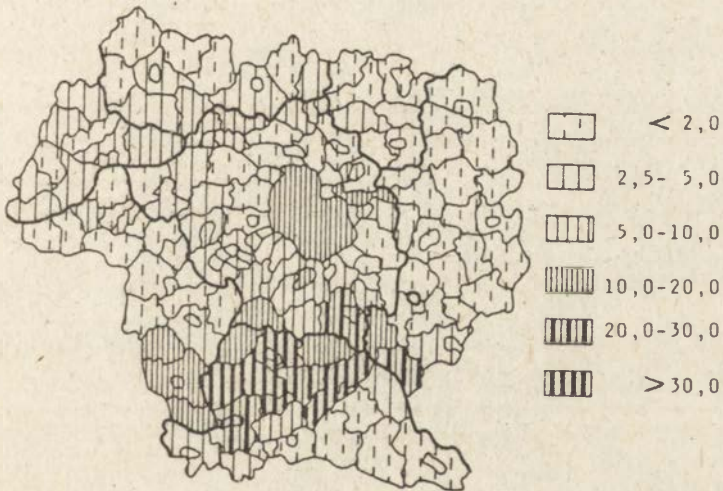


Fig. 5. Land under orchards as a percentage of agricultural land. Individual agriculture 1987.

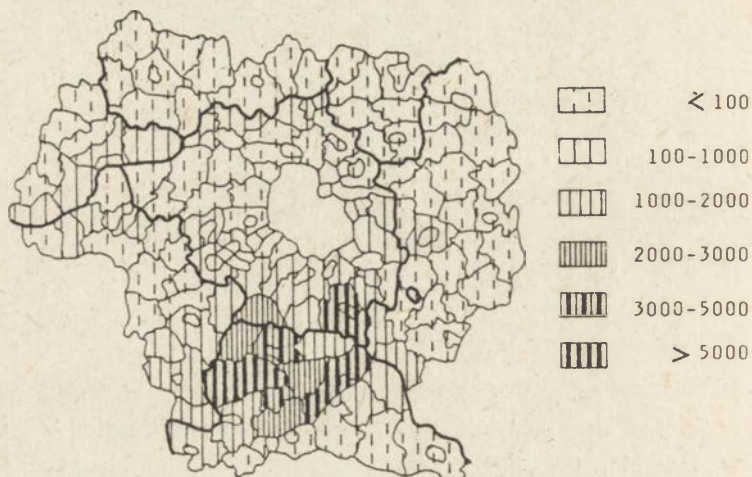


Fig. 6. Gross output of fruits in kgs per 1 hectare of agricultural land. Individual agriculture 1983.

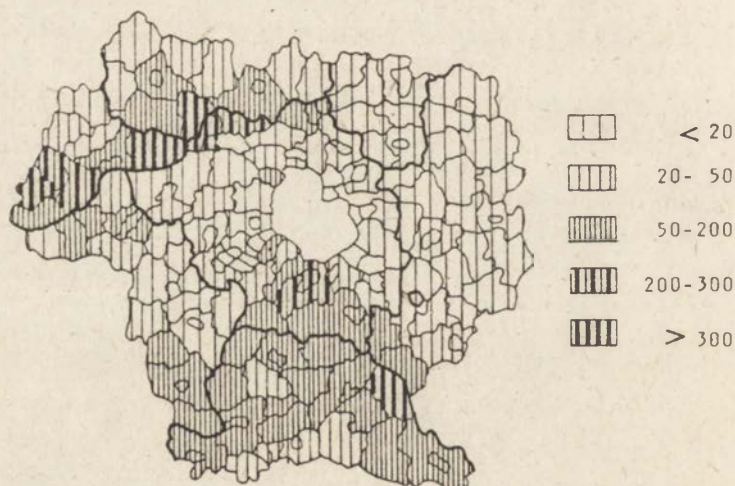


Fig. 7. Berry fruits. Gross output in kgs per 1 hectare of agricultural land. Individual agriculture 1983.

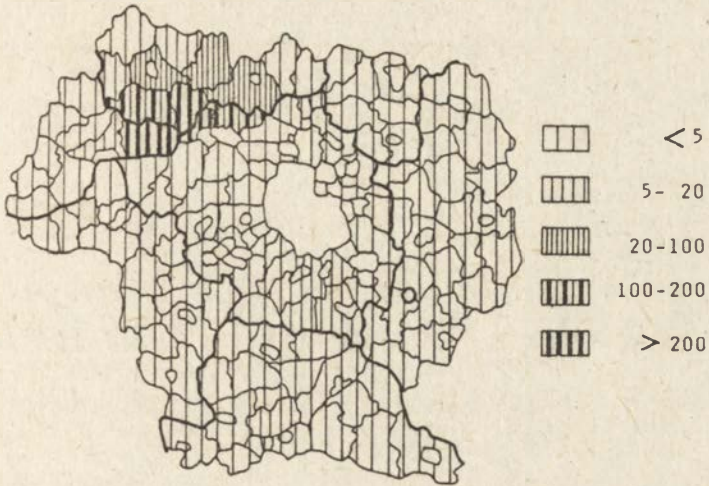


Fig. 8. Raspberry. Gross output in kgs per 1 hectare of agricultural land. Individual agriculture 1983.

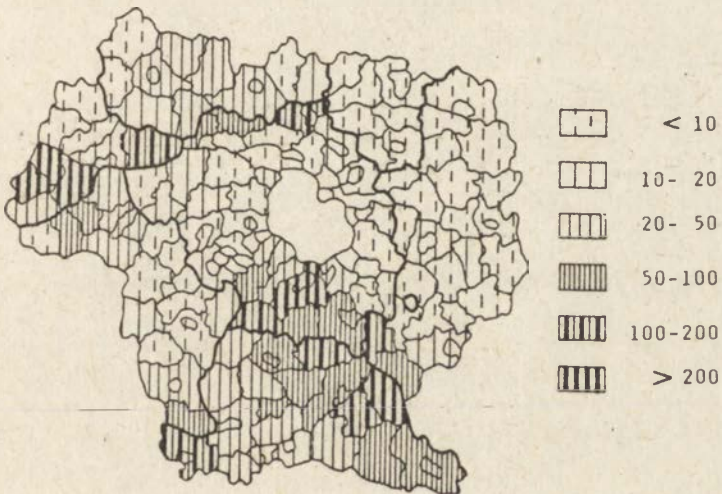


Fig. 9. Strawberries. Gross output in kgs per 1 hectare of agricultural land. Individual agriculture 1983.

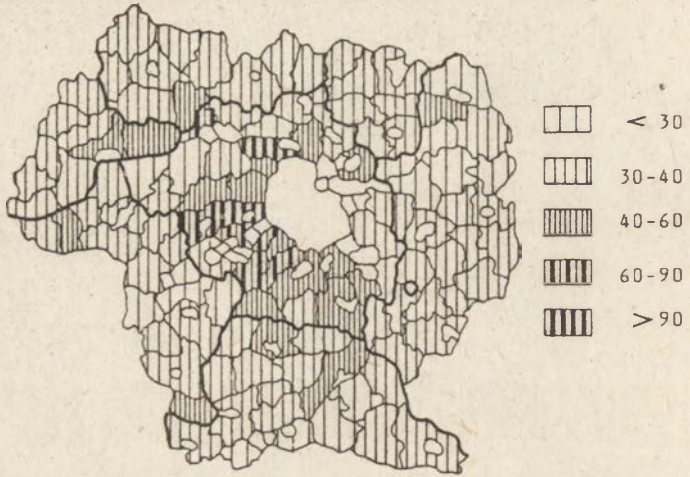


Fig.10. Land productivity. Gross output in thousands zlotys per 1 hectare of agricultural land. Individual agriculture 1977.

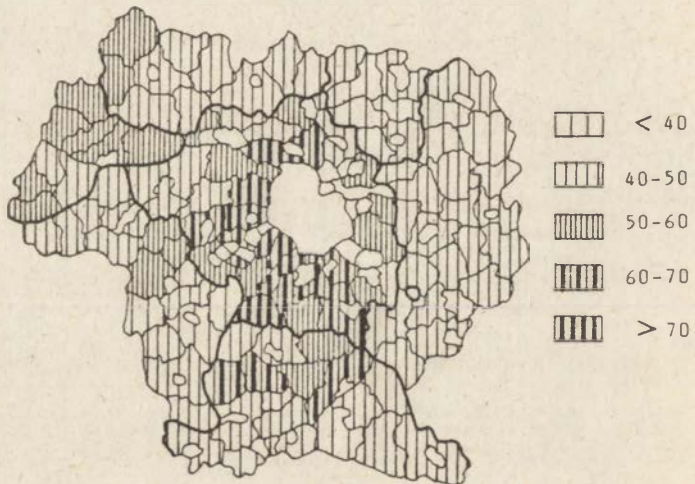


Fig.11. Degree of commercialization. Percentage of commercial in gross agricultural production. Individual agriculture 1977.

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ON SOME PROBLEMS OF AGRICULTURE IN THE URBANIZING ZONE
OF THE CRACOW-UPPER SILESIAN AGGLOMERATION

Introductory remarks

Advancing industrialization and urbanization processes in Poland exert great influence on changes taking place in agriculture. Directions, dynamics and scope of these transformations depend upon the production potential of the neighbouring industrial centers and upon the time period as well as scale of their influence on the adjacent agricultural areas. A particular example of such transformations is provided by the urbanizing zone of the Cracow-Upper Silesian agglomeration, and especially by the villages of the Krzeszowice gmina (commune or township) located at the boundary of influence of these industrial areas. The post-war development of industry in Cracow and in the Upper Silesian Industrial District contributed to emergence of an important labour market. The two industrial centers mentioned are within the daily commuting distance for the inhabitants of the Krzeszowice gmina. Mass employment of agricultural population in non-agricultural occupations has changed the previous social relations system in the villages. A new social group of peasant-workers emerged. Cash inflow from the additional jobs created new prospects for agricultural and village development. This is accompanied by a whole range of transformations in the fundamental socio-economic structures of the territory considered, especially regarding the income sources of the local population, the settlement system, the acreage of farms and production directions of these farms as well as the technical infrastructure. Current transformations lead to broadly conceived changes of functions performed by rural areas.

The problems mentioned here are not new in geography. The present author attempted gain a deeper knowledge of the very process of transformations and its consequences to date. The area chosen has already been a subject of more general geographico-agricultural studies in the 1960s (Guzik 1968, 1969). The present study refers to the previous ones, giving an image of the scale of transformations.

The Krzeszowice gmina is located in the zone between Cracow and the Upper Silesian Industrial District. It is the Westernmost gmina of the Cracow voivodship. Its area is 139.2 sq.kms. This administrative unit is composed of the town of Krzeszowice and of 20 rural villages.

The Krzeszowice gmina is located on the Cracow upland. Average soil class within this unit is IVa for the arable land and IV for permanent grasslands (Użytkowanie gruntów..., 1977). Almost 3/4 of the arable land surface in this gmina (precisely: 73.7%) were qualified as the so called wheat soils (Mapa glebowo-rolnicza..., 1976). A bit more than 1/5 of this area (22.3%) is constituted by the rye soil compounds, and only 3.8% by soils proper for fodder crops.

Land use structure. Agricultural production

Land use structure in the Krzeszowice gmina is dominated by arable lands, occupying 41.8% of the total area (Polish average is 46.4%). Orchards and gardens account for 2.4% of the total (Polish average - 0.8%); permanent grass lands occupy together 7.5%, while in the breakdown into meadows and pastures the former account for 3.4% (Polish average - 8.1%), and the latter - for 4.1% of the total area (Polish average - 5%). Thus, the joint share of agricultural land in the total area of the Krzeszowice gmina is 51.7%, while Polish average is at 60.5%. Forest area takes 36.3% of the gmina surface (Polish average - 28.3%),

In the analysis of crop structure three groups of plants were accounted for, distinguished on the basis of agrotechnical principles, namely - extractive, intensifying and structure-forming plants (Kostrowicki 1960).

The extractive plants, which include cereals, constitute the most important crop group in the Krzeszowice gmina. They occupy more land than all the other plants taken together, namely 55.7% of the overall crop area. Wheat is the most important cereal, taking 17.3% of the crop land. There is also quite a lot of rye - 14.6% of the overall area, and of oats - 14.3%. On the other

hand, much less of area in the Krzeszowice gmina (just 8.5%) is used for barley cultivation.

The intensifying plants, such as root crops and industrial plants, account for 24.5% of the overall crop area in the Krzeszowice gmina. This group is absolutely dominated by potatoes. The share of potatoes for the gmina considered attains 17.7% of the overall crop land. Quite a large area - (especially in Krzeszowice and the closest neighbourhood of this town) is occupied by vegetables. In Krzeszowice, Rudno and Tenczynek the share of vegetables attains the level of 4%.

The structure forming crops, mainly papilionaceous, occur 19.8% of the total crop area of Krzeszowice. Clover is the main plant within this group, taking by itself 18.1%.

Crop yields per hectare in the Krzeszowice gmina are in most cases below the national averages. Thus, in 1985 the level of average yields of 4 basic cereals was at 2.64 tons per hectare, while Polish average attained 2.89 tons per hectare. In fact, the indicator of 2.64 tons was a decline in comparison with the previous year, when it was at 2.81 tons per hectare. Still, there is quite an important increase since twenty years ago, when average cereal crops in the area considered were at some 2.0-2.2 tons per hectare (Guzik 1968, 1969).

Potato yields per hectare, i.e. 14.0 tons, were also below the national average of 17.9 tons in 1985. It should perhaps be noted that the average potato yields in the Krzeszowice gmina were in 1984 at almost 16.0 tons per hectare. In comparison with the 1960s this means an increase of some 3.0-4.0 tons.

The level of technical equipment of agriculture is closely related to the farm structure. There are some 240 agricultural tractors in private farms in the Krzeszowice gmina. Besides these standard tractors private farms own and utilize almost 300 small, low-power tractors (up to 14 HP), primarily produced with craftsmanship methods. It can be concluded from the survey study that, on the average, there is 1 tractor per 7.3 hectares of arable land. Private farms own also 6 combine harvesters for cereals, 68 tractor-pulled mowers, 8 cereal sowing machines, and 2 tractor-pulled sprayers.

Small forms are primarily making use of agrotechnical services offered by the Farmers' Circles Cooperatives. These cooperatives own 7 combine harvesters for cereals and 23 tractors with the basic agrotechnical equipment including 6 mowing machines, a cereal sowing machine and 2 sprayers. This number of trac-

tors does not satisfy the actual demand for agricultural services. Situation is made worse by the fact that the Cooperative employs just 15 tractor drivers. Tractor drivers are paid in this area 2-2.5 times less than people working in mining industry. Thus, mining, which grants also rights resulting from the Miner's Charter is competing effectively with tractor driving and other similar professions.

The number of cattle is systematically diminishing in the Krzeszowice gmina. This fact can be expressed by the data for 1983 and 1985. Overall cattle population fell from 2679 heads to 2276 heads, and the number of cows - from 2154 to 1924. In 1985 the indicator of cattle raising intensity was 42.3 heads per 100 hectares of agricultural land (Polish average - 58.7), and the same indicator for cows was 34.5 (Poland - 29.3). The average milk production per cow in the Krzeszowice gmina is in the range of 2900-3000 liters annually (Poland - 2897 liters).

There are 2867 pigs in the gmina, i.e. 50 per 100 hectares of agricultural land, while Polish average is at 93.5. There are some, but not numerous, bigger farms in the Krzeszowice gmina specializing in pig raising.

There are some 2000 sheep in the area considered, and their number has a tendency to increase. This is related to a commonly held conviction that this activity requires less labour than other animal husbandry activities. The average indicator of the sheep raising intensity in the area considered is 34 heads per 100 hectares of agricultural land (Polish average - 25.7 heads).

The decrease of the number of horses in the Krzeszowice gmina has recently been more rapid. The average number of horses per 100 hectares of agricultural land is 6.5, i.e. significantly less than the national average of 7.4.

Finally, the synthetic indicator giving the intensity of animal husbandry per 100 hectares of agricultural land is for this area 54 standard heads, while its value for Poland as a whole is about 70.

Agricultural production of private farms in the Krzeszowice gmina is meant primarily, and in many cases solely, for self-supply. Limited surpluses are directed to the state purchase points or sold on the free market. The state-organized purchasing is carried out by the Regional Cooperative of Supply and Sales.

In 1985 state purchased some 15% of the cereals produced and only 10% of potatoes. Similarly, the state purchases of beef and pork liveweight do not

exceed 10% of the overall production. Only milk sales made this way are greater. Thus, milk purchased by the state organization, together with that sold on the free market constitute almost 60% of all the milk produced on private farms.

Acreage and ownership structure

Private ownership of land dominates absolutely in the land ownership structure of the Krzeszowice gmina. Approximately 90% of agriculturally used land belongs to private farms. The rest, i.e. about 10% of agricultural land belongs to the socialized sector - out of which some 8% to the state farms and 2% to the cooperatives. It should also be noted that the State Land Fund¹ in the Krzeszowice gmina had at its disposal in the middle of the 1980s of the overall surface totalling 930 hectares. This land awaits agricultural development and use. It is constituted by the lands of farms economically bankrupt, mainly because of the advanced age of their owners and lack of successors, and taken over thereafter by the state. It is difficult to secure the agricultural use of these lands anew, primarily because of low acreage and scattering of plots. In such a situation farm integration can only be performed if a large-scale exchange of plots is made prior to integration. Without this expensive operation even fields of 1 hectare cannot be planted with a homogeneous culture.

Similarly, as in the whole Cracow voivodship, private agriculture in the Krzeszowice gmina is characterized by low acreage of farms. Thus, in 1985 there were 4011 farms, i.e. of total surface exceeding 0.5 hectare and 5564 parcel farms, whose area did not exceed 0.5 hectare. Average surface of a private farm in most villages of the Krzeszowice gmina is about 1 hectare (when proper and "parcel farms" are considered together this average falls below 1 hectare). For the sake of comparison it should be added that the average private farm area in Poland is close to 5 hectares and in the Cracow voivodship this average is about 2.5 hectare (Gospodarka Ziemią, 1984).

The process of the farm division was especially intensive after the war, in the 1950s. This fact was caused by advancing urbanization and industrialization of the country, and in particular of the Cracow-Upper Silesian region,

¹ Land taken over by the state but not yet given or sold to any particular person or organization.

dominated by heavy industries. During this period, and afterwards, employment of the Krzeszowice gmina inhabitants in non-agricultural jobs has been increasing. Commuting to the industrial plants of the Upper Silesian Industrial District and of Cracow intensified. Interest in the agricultural activities diminished in the traditionally farming families. Non-agricultural jobs have become a better source of income. Everyday commuting engaged time and energy of people previously engaged in farming. Peasant-workers were linked to countryside by virtue of their residence location, while being linked to their job at a plant in town. True to their family traditions they usually would not give up the land owned although most often dispose of a portion of the family farm. Thus the family divisions of land intensified. Some of these were legally carried out, while many other entered as informal deals among descendants of the farm owner.

The process in question was also influenced by agricultural policy at the beginning of the 1950s - namely bigger private farms were clearly discriminated against. It is then that fictional farm breakups abounded. Out of one somewhat bigger farm two or more parcel farms were formed. Later laws legalized this actual ownership status, allowing granting of land to its current users.

The private farm division process is not yet completed. Although the number of proper private farms in the Krzeszowice gmina diminished by 712 in the years 1976-1985, the number of parcel-farms i.e. having less than 0.5 hectare of surface, increased by 1468 in the same period.

Agricultural farms of up to 2 hectares constitute almost 85% of the farms in the Krzeszowice gmina. There are only 25 private farms of more than 10 hectares, that is - mere 0.6% of the total farm number in this gmina.

The question of low acreage is accompanied by the patchwork structure of fields, so that farms are composed of many land plots. In many cases two-hectare farms are composed of 6 to 8 or even 15 to 17 separate land pieces. There is a farm in Nawojowa Góra village, having total surface of 18 hectares, which is composed of more than one hundred plots! This particular farmer has bought much of his land from the State Land Fund, hoping for a prompt implementation of the farm integration program in this village.

Individual land plots have only 0.15-0.2 hectare of surface, but there are also even smaller plots. Situation is made worse by the spatial scatter of the plots. It happens that they are 3 to 4 kms apart, while being located at 2 to 3 kms from the farmhouse.

Most of the Krzeszowice gmina is an upland area with a significant share of slopes of more than 15 degrees of steepness. Numerous surface cuts, narrow canyons, lack of roads leading to fields - all that contributes to high labour intensity and costs in local agriculture. On the other hand labour force resources in the countryside diminish continually, and the number of horses is going down rapidly as well. Mechanized tractor-pulled equipment cannot always be relied upon in this rugged landscape. Working with horse-pulled equipment lasts longer, though, and that is also why the overall costs of agricultural production are high.

When considering costs borne one should take note of the significant incomes of the local population from the numerous well-paid jobs especially in heavy industry. It is from these incomes that additional agricultural costs are covered. On many occasions this occurs within two or even sometimes three-generation families, where grandfathers receive pensions, fathers may also already be on a retirement payments, and children work in well-paid occupations.

A farmer who takes up a difficult job, especially in mining, such a peasant worker, may engage only in less labour intensive agricultural activities. He is quite satisfied with cultivation of only a small piece of land, located near to the farmhouse. Far-off fields, especially located high on a slope near to the forest line, that is, to be reached only with difficulties when using heavier equipment, are rented out or, are left uncultivated.

A survey of utilization of agricultural land, carried out recently in the gmina indicated that some 120 hectares of agricultural land are not cultivated. Half of that area was not made use of just because of accessibility difficulties.

Influence of Cracow and of the Upper Silesian Industrial District on the socio-economic development of the Krzeszowice gmina

The area of the present Krzeszowice gmina have always belonged administratively to the Cracow sphere of influence. Economic development of this area is also significantly influenced by the economic links with the Upper Silesian Industrial District. According to studies carried out by Z. Długosz (1985) the Krzeszowice gmina features relatively low - as compared to other areas within the zone of influence of the Cracow-Upper Silesian agglomeration - population inflow and outflow indices. Although net migration is negative, the overall

indicator of population mobility of this gmina is, in comparison with the averages for the Katowice and Cracow voivodship, quite low.

The Upper Silesian region is of special importance as the biggest regional labour market in Poland. Collieries, steelworks and power plants offer financially attractive jobs. Commuter buses belonging to enterprises of such towns as Trzebinia, Jaworzno, Siersza, Libiąż and Dąbrowa Górnicza reach daily all villages of the Western and Northern part of the Krzeszowice gmina ensuring thereby an easy and effective way of reaching the workplaces. Work in these enterprises is organized in two or three shifts. In such villages as Filipowice, Wola Filipowska, Tenczynek, Żalasio, Nowa Góra and Ostrężnica every second working person is employed in mining, in collieries of Siersza, Jaworzno and Libiąż. There are more commuter buses of enterprises reaching these villages than regular scheduled buses of the State Bus Transport.

In the Eastern part of the Krzeszowice gmina analogous commuting to jobs in Cracow and Nowa Huta steelworks takes place. Survey studies, however, indicate that there is altogether a significant majority of Westward commuting. Thus the enterprises of the Upper Silesian Industrial District are the destinations of 2/3 of the outward bound commuter trips from the gmina while the other 1/3 of these trips go in the direction of Cracow.

From the viewpoint of agriculture such mass job commuting should be treated as a negative phenomenon. Double occupational population owns and runs almost all of the farms in this area. A miner-peasant who commutes daily to a hard job in a colliery is not interested in agriculture and especially in its most labour intensive sector that is - animal husbandry. Dairy cattle raising or pig raising takes his time otherwise free from the industrial job, the time which is necessary for rest. On the other hand, when working hard physically, he has to observe appropriate diet. With that respect worker-peasants often underestimate the significance of their farms. Family budget is secured by the well-paid mining jobs.

Such a view of the engagement of workers-peasants in farming would be one-sided. It is also true that some farms of the peasant-worker population are partly financed from incomes originating outside agriculture. This financing allows to purchase additional equipment, labour- and time-saving on a small farm. The time thus saved is therefore an addition to the rest and leisure periods between the commuter trips.

Production from such farms is meant solely for family self-supply. It has certain, sometimes even quite high, importance for the family budget and offers the feeling of independence.

Some worker-peasants sell a part of their produce on the market, gaining certain profit therefrom. This applies primarily to the farms located on better soils in the vicinity of Krzeszowice. These farmers traditionally cultivate strawberries or raspberries on small plots of land of several hundred square meters. Tomatoes and lettuce are grown in foil tunnels located next to the farmhouse. This production is altogether not very high, but it contributes to the local market. Both growing of the crops and selling of the fruits and vegetables mentioned is usually done by the wives of worker-peasants. It often occurs, as well, that the husbands themselves plan their vacation so as to be able to participate in strawberry or raspberry picking.

The Krzeszowice gmina is one of the very few examples of areas in Poland with such a very high share of double occupational population: 98% of farm owners are worker-peasants whose main income, and the family upkeep, comes from non-agricultural jobs. The indicator cited here is calculated only for farm owners, who work additionally outside agriculture. If criterion were changed to the one according to which a household is referred to as double occupational if at least one of its members works both on the farm and outside agriculture, then the indicator mentioned would increase to 100%. Simplifying, it can be stated that every male inhabitant of the Krzeszowice gmina in productive age works also in some non-agricultural job. The same applies to single women. In a majority of cases these parcel-farms are in fact run by the wives of workers-peasants. This is especially true for the older and middle generation. In the younger generation agricultural duties are evenly divided within the families. This is especially needed there, where both wife and husband take up non-agricultural jobs, and even more so when this job involves working on the second or third shift.

Working simultaneously in non-agricultural jobs and in agriculture has influenced positively the life standard of inhabitants of the Krzeszowice gmina. Expressions of this fact can be found, for instance, in the architecture of particular villages as well as in the household and farm equipment. The changes which these areas of life underwent have occurred during the last 20 years. It is in these years that the outlook of particular villages has been entirely transformed. There was a large degree of reconstruction in the villa-

ges of the Krzeszowice gmina. Within the whole area considered two- and three-storey residential buildings have been constructed.

An example of changes in housing construction is provided by the village of Filipowice. The newly constructed residential houses compete among themselves in terms of quality of craftsmanship and originality of outlook. Attention is attracted by the rich interior design. Inhabitants of this village value significantly, besides the functional solutions applied in housing and farm construction, also the esthetical outlook. The necessary means are acquired from jobs in mining. It sometimes happens there that 2 or even 3 persons in one family choose the mining job. Such occurrences, though, are not quite isolated in the other areas of the gmina considered.

Together with the development of new housing construction water demand of the countryside increases. In 11 villages and in the Krzeszowice town water supply systems are functioning. Successively implemented water supply systems significantly contributed to an important improvement of water supply to residential housing and farm buildings. Estimates provided by agricultural service indicate that 60% of water needs in the Krzeszowice gmina are covered from the water supply system, while 40% of these needs are covered from wells. Still, the farmyard wells are more often equipped with automatic pumping systems.

Young generation of worker-peasants take over the greater farms handed to them by their parents with certain reluctance. Final decision of acceptance of such a farm is usually made under the condition that the farm inherited be equipped with a tractor. A comfortable residence is also very well seen. Young farmers are willing to obtain bank credits both for residential house construction or enlargement and for purchase of machines and facilities necessary for agricultural production.

When speaking of the attitude that the young generation of the Krzeszowice gmina inhabitants displays with regard to the agricultural land, one should consider this question from the two viewpoints: first, as the attitude towards agricultural land connected with taking over of productive farms, and secondly as the interest in having land plot, on which a house can be built and where it is possible to have a garden.

While in the first case reluctant or even negative opinions dominate, there is a considerable willingness to own a smaller piece of land. The boundary value is 0.5 hectare. Namely, larger plots are already qualified as farms, which entails automatically a number of obligatory payments, such as, for instance, legally determined retirement dues.

Family housing construction on particular agricultural plot becomes more and more common. Such a free-standing house with an orchard and a vegetable garden is a sui generis recreational plot of a miner or a steelworker - i.e. a place of rest and recreation for a working man in the open air. With that respect a majority of the area of the Krzeszowice gmina functions in a way as both a residential and recreational zone of the Cracow-Upper Silesian agglomeration.

Socialized farms

The socialized land ownership accounts for some 10% of agricultural land in the Krzeszowice gmina. This ownership sector is represented by the state farm in Paczółtowiec, belonging to the Cracow Center of Agricultural Advance in Karniówice, the Horticultural Cultivation Station in Krzeszowice, and by the Agricultural Production Cooperatives in Sanka and, newly established, in Filipowice.

The state farm of Paczółtowiec has the overall area of approximately 280 hectares. This farm was created at the beginning of the 1970s, partly from the monastery grounds previously taken over by the state (some 30 hectares), but primarily out of the land bought from private farmers. Because of the upland nature of the farm area, land use in this farm is dominated by pastures and meadows, mostly utilized alternately. The farm specializes in the pedigree sheep husbandry.

There is a Horticultural Station in Krzeszowice, which was also created in the 1970s. This farm has greenhouses of total area of 14.4 hectare and 300 hectares of open air fields, where crop and animal raising activities are conducted. The farm has some 30 dairy cows as well as cattle raised for meat.

Half of the greenhouse surface is taken by tomatoes for direct consumption, 1.5 hectare is used for cucumbers, 0.8 hectare - for gerberas; carnations, roses and carnations nursery take 0.5 hectare each. Approximately 1 hectare greenhouse surface is taken by the flower seed-beds, of carnations and chrysantemums, for instance, 2 hectares are taken by seedtomatoes, while about 1 hectare is devoted to raising of new varieties of greenhouse tomatoes. Thus, a kind of greenhouse combine is functioning there.

The enterprise considered employs some 600 persons, and out of this number half are working directly in greenhouse production, some 100 persons in animal husbandry, the rest in technical service for greenhouse production, in the plant production sector and in administration.

Most efficient greenhouse production is seedtomato growing. Greenhouse surface of 2 hectares is devoted to growing of several tomato varieties obtained on the Krzeszowice State Farm. Annual yield of seeds of the tomatoes is approximately 700 kgs. At the end of the 1970s an Agricultural Production Cooperative was created in Sanka. At the beginning this cooperative had some 30 hectares of agricultural land. Afterwards, some fields belonging to the State Land Fund were taken over and some land was bought from private farmers so that the overall acreage of the farm increased to 86 hectares. Presently the cooperative in Sanka counts 120 members. Some of them contribute land, but most of them gained their membership rights through financial contributions. Financial contribution gives the right to work in the service departments of the cooperative.

The agricultural Production Cooperative in Sanka conducts also so-called auxiliary activities, besides the directly agricultural ones, so that special repair and construction groups have been organized within the cooperative.

This cooperative has attained already a good level of development. Other farmers from Sanka are willing to join in, and not only they, but also farmers from neighbouring villages, located beyond the boundaries of the Krzeszowice gmina.

Arable land of the cooperative is taken in 50-60% by cereals. Approximately 5 hectares are used for onion growing. The onion production is export-oriented. One of the export destinations is Federal Republic of Germany.

In 1986 work has started aiming at organization of the second cooperative of this type in the Krzeszowice gmina in the village of Filipowice. Until quite recently Filipowice had been a typical village for this region, known especially for its dairy and orchard products. It is there that the tradition of keeping at least one cow on the farm has persisted the longest. Since the middle of the 1970s the interest in agricultural land significantly decreased. Farms were more and more often kept by the older people, emotionally linked to farming. Owing to these people cattle raising and milk production was maintained. Younger people choose other jobs. Some of them left for cities, other commute daily to work in industry. Farms inherited from their fathers become a burden for them, and they try to get rid of that burden. That is why they get interested in the plans of organization of an Agricultural Production Cooperative. Such an interest does not mean, though that a candidate wants to join the cooperative together with the land owned, in order to work there. The

interest is limited to selling the farmland to the cooperative in order to get rid of the burden of agricultural duties. The farmhouse though, together with adjacent plot, is meant to be left. Produce from the small plot should satisfy the food demand of the family. Such an attitude is dictated by economic calculation. Those willing to undertake the traditional agricultural work are more and more infrequent. With such a structure of farms as outlined here, the profitability of animal husbandry activities seems to be most doubtful.

Concluding remarks

The Krzeszowice gmina is located in the urbanizing zone of the Cracow-Upper Silesian agglomeration. Main source of income of the population inhabiting this gmina comes from non-agricultural jobs. In that respect agriculture plays a secondary role. Still, a farm of a worker-peasant is an important source of food supply for his family. Good wages earned in industrial enterprises of the Upper Silesian Industrial District and in Cracow, complemented with food production for self-supply, contributed to continuing increase of the standard of life of the Krzeszowice gmina inhabitants. This fact finds its expression in the development of family residential housing construction, in household equipment, in the increase of car numbers and in the increase of investments into agricultural production.

A worker-peasant is first of all interested in a small parcel-farm. Larger farms decline, often lacking successors. Fields located in the mountainous part of the gmina far from the farmhouse, are often left uncultivated. There are 930 hectares of land in the State Land Fund. This total area is composed of numerous small plots scattered in various parts of particular fields. Spatial integration of fields is necessary in the Krzeszowice gmina. Exchange of plots would improve significantly the spatial pattern of particular farms. This would also constitute an opportunity for creating somewhat bigger farms, of 5 to 10 hectares. First, such farms should be created out of the State Land Fund resources, and thereafter also on the basis of land whose cultivation ceases mainly due to the process of ageing of farm owners. Farms of this magnitude would be family enterprises. They would give the produce necessary for urban areas and simultaneously would secure the agricultural family's budget. There certainly would be families and persons willing to take over these farms. The evidence of that can be found in the Gmina Office, tilled with applications coming from various parts of Poland, especially from the mountainous

areas. Offering of such a farm in the direct vicinity of Cracow would constitute an interesting proposal. On the other hand, if farm integration could result in a compact area of several tens of hectares of agricultural land, then both the Krzeszowice Station of Horticulture and the Cracow Center for Agricultural Advance in Karniowice would certainly be willing to take it over. The necessity would arise, however, of constructing adequate road network leading to the fields.

Besides efforts aiming at creation of bigger agricultural farms it is also necessary to undertake activities leading to improvement of agricultural production on small parcel farms. There are many indications of continuing interest in such farms. The process of farm division is not yet finished within this area. By-laws in force forbid splitting of small farms. Such limitations are certainly justified in other areas of the country. The area in question, however, as a part of the typical suburban zone, private farms get even smaller, there is intensification of agricultural production taking place parallel with the division process. Although market production of particular farms is usually small, the degree of self-sufficiency of greater, even three-generation families, increases.

Small farms are in need of assistance on the part of the state. Their requirements are different from those of larger farms. There is, for instance, a demand for small agricultural machines. A miner-farmer is willing to allot quite a proportion of his financial resources for purchase of small machines that would economize his time and facilitate work in his farm. Lack of such machines makes it necessary to turn to a Farmer Circle's Cooperative for service. Capacities of such cooperatives are, however, limited. That is why particular agrotechnical functions are often not carried out timely, so that losses arise.

Together with the continuing tendency towards creation of parcel farms there is also an increase of interest in garden allotments. A 40-hectare area for such garden plots is being established in the proximity of Tenczynek. It is mainly the inhabitants of Cracow that are interested in these allotments, but a part of the area is reserved for the Krzeszowice gmina. There are, for instance, miners among those expressing interest in the garden plots. For them, gardening on a small plot is a form of leisure, of relaxation after their work. The greatest proportion of time is spent there by the retired people.

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TRANSFORMATIONS OF THE RURAL AREAS AND AGRICULTURE
IN CENTRAL CARPATHIAN MOUNTAINS

Polish Carpathian mountains provide, even on the European scale, an exceptional example of very strongly differentiated spatial changes related to natural environment and to historical development conditions. There are particularly high economic disproportions between, on the one hand, the Western, and to some extent central part of this mountainous country, altogether encompassing such known economic and tourist centers of Poland as Bielsko-Biała, Wisła, Szczyrk, Ustroń, Zakopane, Szczawnica, Nowy Sącz, Krynica, and, on the other hand, its Eastern part, much less developed, where forestry and agricultural functions prevail. These differences are well expressed by the population density per 100 hectares of agricultural land, ranging from some 300 persons in the Western part, to 150-200 in the central part and down to even less than 50 in the Eastern part (Fig. 1).

The area of Western Carpathian Mts. was involved relatively early, i.e. at the end of the 19th century, in the industrialization process, both through development of local centers and through employment of local population within the Upper Silesian region. Simultaneously, because of exceptional natural and landscape values of these areas, tourism and recreation had started to develop there already before World War II. Presently, these areas are the main leisure and recreation basis for inhabitants of the Upper Silesia. Industrial enterprises of the Upper Silesia own there vacation houses and other facilities (ski lifts, swimmingpools, etc.) for their employees. Owing to good road and rail connections there are some 70 to 100 thousand weekend visitors coming to this area.

Bigger spas as well as vacation and tourism centers have also appeared in the central part of Carpathian Mts., mainly in the region of Tatra Mts. and Podhale (e.g. Zakopane, Rabka), and in the Poprad river valley (Krynica, Muszyna, Żegiestów) which attract primarily the inhabitants of Cracow and of the central parts of the country. On the other hand, tourism is developing very slowly in the Low Beskid and in Bieszczady Mts., i.e. in the Eastern part of Polish Carpathian Mts., where natural conditions are also very attractive, and the tourism developments have very limited influence on the economic life of the local population. It is still agriculture, and also in some cases forestry that provide the majority of jobs.

This paper focuses on the central part of Polish Carpathian Mts., which is located within the boundaries of the Nowy Sącz voivodship. This area encompasses the most valuable nature assets in the Carpathian Mts., primarily the Tatra Mts. and the Pieniny Mts. It features a differentiated socio-economic structure and performs a number of important functions for the whole country, including those related to water economy, the use of sanatoriums and other health facilities and tourism. Out of the total of 101.2 thousand beds in tourist and vacation houses, as many as 66.7 thousand, i.e. 65.9%, are located in the central part of Polish Carpathian Mts., while 23.7 thousand are located in the Western, and only 9.7 thousand in the Eastern (Bieszczady Mts. and the Low Beskid) parts.

In the historical development of this region of the Carpathian Mts. particularly important economic, demographic and cultural changes happened after 1945. These changes were consequences of the following factors:

- a) large outflow of population towards the areas joined to Poland after the World War II and towards the industrial centers of Poland;
- b) almost complete exchange of population in the area inhabited prior to 1945 by Lemko-ethnic group (the Poprad river valley and the Low Beskid);
- c) strong development of bus transport, especially within the hinterland of such towns as: Nowy Sącz, Gorlice, Nowy Targ, Limanowa;
- d) increase of non-agricultural employment of rural dwellers through job commuting to local industrial centers;
- e) increase of the role of secondary education through which country youth is trained to take up non-agricultural jobs;
- f) modernization and intensification of agriculture;
- g) development of sanatorium and vacation house, as well as tourist shelters.

Magnitude and directions of migrations and their consequences for rural development.

Outmigration of population from the areas of central Carpathian Mts. had reached a relatively large scale even before World War I. Migrants did at that time usually go overseas. In the period of 1918-1939 outmigration to USA and Canada continued. The greatest changes in population of villages of central Carpathian Mts. occurred, however, through internal migrations after World War II, encompassing from 10% to even 50% of the rural population. Altogether some 120 thousand people left the Nowy Sącz voivodship since 1945 for other regions of Poland. In spite of that important population outflow, however, rural population of this voivodship has still been growing and reached the figure of 432 thousand in 1986 (i.e. 64.1% of the total voivodship population), which meant an increase by nearly 90 thousand since 1950 (Table 1). This fact is to a large extent related to high natural increase which amounted in the 1950s to some 2.5% annually. Currently, natural increase in these areas is 1.2%.

It can be concluded from the data of Table 1 that the population change is strongly correlated with functions of particular villages. The highest increase of population numbers in the years 1950-1986 (by more than 50%) occurred in typically tourist villages within Podhale (Bukowina Tatrzańska, Szaflary, Poronin, Kościelisko), while the second highest - in tourist-agricultural villages (increase by some 35%). The population increase in agricultural localities was rather small - approximately 16%. In numerous villages population actually diminished. More detailed statistical studies indicate that from among 462 villages belonging to the Nowy Sącz voivodship there were 60% characterized by population increase in the period 1950-1986 (including 14% of those that indicated sharp increase, 16% - indicating stagnation and 24% - decrease. Depopulation occurred primarily in the villages located on the slopes of such mountain ridges as Gorce, Radziejowa and Jaworzyna. Population outflow from the mountain areas intensified particularly in the 1970s, when Polish economy was going through the period of rapid growth. At that time most people migrated from small localities with weak service and trade infrastructure, located far from towns. Presently, due to economic crisis, permanent migration of population has been clearly diminishing in almost all of the voivodship.

Increase of the non-agricultural employment in rural villages

Central Carpathian Mts. had been an agricultural country with an important labour surplus before World War II. Population was mainly employed on small farms of 3 to 5 hectares. After 1945, however, as industry and tourism developed, importance of agriculture declined. More and more people worked outside farms. This process was primarily caused by the following factors:

- a) development of local industrial centers such as Nowy Sącz, Gorlice, Nowy Targ, Limanowa, which are now employing several thousand commuters living in the rural areas around;
- b) modernization of roads and development of bus transport not only within the suburban zone, but also in rural areas, where tourism developed; there was a special program created, the so called "Nowy Sącz experiment", whose purpose was to accelerate growth of the transport network in tourist areas; this program resulted, for instance, in modernization of roads in the Poprad river valley (so called "Poprad loop"), and in the Podhale region, as well as in organization of bus transport with high frequency of connections;
- c) job commuting by local population to Upper Silesia and other regions of Poland;
- d) employment of rural dwellers in local tourist services, both socialized and private;
- e) employment of residents of border-adjacent villages in the neighbouring Czechoslovakia; a majority of people working permanently on the other side of the border come from Orawa and Spisz; thus, for instance, from the Jabłonka gmina (commune or township), whose total population is 18.1 thousand, 1.6 thousand work in Czechoslovakia.

Presently, in the Nowy Sącz voivodship (central Carpathian Mts.), almost 47% of rural dwellers owning agricultural land work outside agriculture. The increase compared to 1970 is by almost 16% (Table 2). More detailed data indicate that, in some 1/3 of all the villages the shares of non-agriculturally employed are much higher and amount even to 60-70%. This concerns first of all villages located around bigger towns, but also those in the tourist-oriented areas, for instance, villages of Rytro (69% of non-agriculturally employed), or Młodów - 65% (Fig. 2).

The main cause for taking up jobs outside agriculture is low acreage of farms and therefore low family income from farming. Table 3 contains information on the magnitude of non-agricultural employment of the rural population according to the farm size breakdown.

As it can be seen, non-agricultural jobs are most often taken up by population from the smallest farm size group, up to 2 hectares. On the other hand 25% of all people from the larger farms (at least 10 hectares) work outside agriculture as well, in order to increase the income necessary for the family budget. Men work outside agriculture more often - their share in the non-agricultural employment is 55.9%. These people are on the average better educated than those working exclusively in agriculture. In 1986 there were 27.2% of the non-agriculturally employed villagers with more than primary education (vocational and general high school), while the same index for those working solely on farms was at 17.5%. There is also a difference of age - those working outside agriculture are on the average younger. Most of them (60% of the total) are younger than 40 years of age, while among those working exclusively on farms almost 50% are older than 50 years (25.8% of them are older than 60 years of age). More than 1/3 of all farms in the Nowy Sącz voivodship are owned by farmers older than 60 years of age.

As more people take up non-agricultural jobs the number of double occupational (peasant-worker) households increases. This increase is also stimulated by the development of tourism. Rural areas of Polish mountains, and especially those attractive for tourism, have recently acquired higher value and their inhabitants are not willing to leave their land. A piece of land may be sold for a high price. Farm owners, therefore, often sell construction plots (for construction of "summer houses") to urbanites and use the money thus obtained to build or enlarge their house (to include guest rooms). This applies equally to children of these owners. Thus, low acreage of farms and their lack of economic independence persist or even get deeper. These two phenomena are "enhanced" by the currently very slow development of towns located in the mountains, this development being limited by ecological considerations. Towns of central Carpathian Mts., excluding the voivodship capital, Nowy Sącz, have therefore little possibility of receiving migrants from the rural villages. In addition to employment in industry and in other non-agricultural sectors, including tourism, an important role is played by the contracted work performed at home. Thus, farms containing forest areas are very often, at least partly, oriented at producing on place various simple wooden household appliances such as spoons or cloth-hangers, or goods contracted by industry, such as wooden boxes for transport of machines. All these goods are produced within farms in time free from work in agriculture, sometimes by all the household

members. The greatest shares of farms engaged in those activities (up to 25% of all farms) can be found in villages located far from towns (e.g. in Gorce Mts.).

Transformations of the socio-occupational structure of rural population proceed currently primarily through education of young people in secondary and vocational schools. If at the beginning of the 1950s youth from some mountainous areas (for instance from the surrounding of Zakopane) did still finish their schooling at the level of primary education (7 grades), currently some 87-95% of young people continue their schooling after the primary level. Most of them - over 61% - choose vocational training, whereby after just 3 years jobs are available to them (Table 4). Young people prepare themselves almost exclusively for non-agricultural jobs, and less than 10% are being taught in agricultural schools. Such profile of education of the young contributes to the increase of the number of rural-urban commuters and to acceleration of permanent outmigration of population from the mountains to industrial centers.

Mountain agriculture - directions of development and modernization

Socio-economic transformations taking place in the mountains after World War II and related to population outflow, tourism and industry development have very distinctly constrained the role of agriculture in the life of highlanders and changed essentially the conditions of its development. Self-supply functions of agriculture have been gradually disappearing, while commercial functions have been formed. The most important transformations, however, concern the methods of organization and techniques of production in agricultural activities. On the other hand, however, the acreage and ownership structures remain almost unchanged. More than 95% of the overall agricultural land within the area considered belongs to private farmers, while only less than 5% is used by the state and cooperative farms. Such a proportion remains relatively stable for the last 40 years.

Agricultural land in the voivodship belongs to 84 thousand farms (counting those of at least 0.5 hectare), whose average area is 4.14 hectares of total farm area and 3.02 hectares of agricultural land sensu stricto (1.2 hectare of forested land). The smallest farm class (0.5-2 hectares) accounts for 31% of the total agricultural land, the medium ones (2-7 hectares) - for over 55%, and the bigger ones for only 12%. This structure of farm acreage does not show signs of more important changes either.

There is quite a common disadvantageous phenomenon in central Carpathian Mts. consisting in field patchwork. Farms are composed of land pieces in numbers of up to twenty or even beyond. The average for the Nowy Sącz voivodship is 14 pieces. These land plots are located in various parts of the village, or even in other villages, and are sometimes quite distant from the farmhouse - even 10 kms and more. An example is known of a dozen villages in Orawa where farms are composed on the average of some 60 land pieces with average area of some 0.05 hectare. There are farmers whose farms consist of 200 or even 300 separate land pieces!

Thus, difficulties of mountain agriculture, related to natural conditions are compounded by low acreage of farms and by the field patchwork, and by the lack of appropriate machines, adequate for cultivating the mountain slopes. Such machines are not as yet produced in Poland. It is only since 1981, and in reality since 1985, i.e. when Polish government issued a special decree concerning development of mountain agriculture, granting higher prices for milk, beef and wool, as well as special, low interest loans for agricultural investments, that these difficulties of mountain agriculture started to be recognized officially. The government promised also to assist in construction of roads, water supply, electric lines and service development in the mountainous areas. Many of these initiatives, however, are late with regard to the needs of mountain agriculture, and their implementation encounters difficulties because of the present economic crisis. Still, in spite of all these troubles, agriculture of central Carpathian Mts. has made an important progress in production level and in machine use. With regard to the number of tractors this area does not differ significantly from the country's average (25 hectares of agricultural land per one tractor as compared to the overall Polish average of 22 hectares). The use of mineral fertilizers is, however, lower (120 kgs per 1 hectare as compared to the national average of 175 kgs), as is also the use of fertilizer lime (86 kg/ha, while the national average is at almost 140 kgs)

One of the most important fruit producing regions in Poland developed after the World War II in the area of central Carpathian Mts. Production is to a large extent based upon the so called "block-orchard" system (i.e. several small farms jointly conduct operations in one common orchard of 10-15 hectares where ownership of each of the participants is preserved). Orchards are concentrated in just a few gmina where they constitute the main culture and the fundamental source of agricultural income (fruits account for more than 50% of

the agricultural producers' sales value in these gmina). Cooperation of private farmers with the state and cooperative fruit and vegetable processing factories has also led to the development of high production level of currants, gooseberries and raspberries (mainly around Nowy Sącz and Tymbark). There is, as well, quite an important greenhouse activity, turning out early spring vegetables and flowers meant for sale in vacation centers, resorts as well as in the towns of Upper Silesia and in Cracow. The activities mentioned are developing in so far more easily as there is sufficient labour force on place (40 to even 80 persons per 100 hectares of agricultural land).

Still, the most important activity in the mountain agriculture is, as before, animal husbandry, and especially cattle and sheep raising. Central Carpathian Mts. feature relatively high cattle raising intensity (86 animals per 100 hectares of agricultural land as compared to the national average of 56). The same applies to sheep (86 as compared to 26). In these parts of the central Carpathian Mts. which are situated at the highest altitudes both the cattle and sheep raising intensities are even bigger (over 100 per 100 hectares and over 300 per 100 hectares, respectively), and some farms (6-9% of the total) specialize in livestock production. During summer the sheep and a part of cattle from private farms graze on mountain meadows (common grazing of herds containing several hundred heads). Since 1986, after a 20 years long break, approximately 1200 sheep and a few cattle heads, are grazing in the alpine meadows of the Tatra Mts. This is the so called "culture pasturing", meaning an effort of preservation of the shepherds' folklore, constituting an important element of the mountain population culture.

As a consequence of the processes described, the villages of the Carpathian Mts., have significantly changed their character. They have to a large extent turned into multifunctional settlements, interconnected and consolidating through socio-economic interdependences into bigger settlement units. Important links of these bigger units on a local level are focused on the gmina centers - small towns and bigger villages, which are seats of local administration. It is there that most of basic services for agriculture and for rural population are concentrated.

Functional differentiation of rural settlements in central Carpathian Mts (Nowy Sącz voivodship) is shown in Fig. 3. Villages were classified into 4 types:

a) agricultural, totalling 196 villages (42.4% of all the villages);

- b) agricultural-service, altogether 39 villages (8.4%);
- c) agricultural-tourist, 72 villages (15.6%);
- d) agricultural-service-tourist, 155 villages (33.6%).

Problems of development and socio-economic transformations in the areas populated before World War II by Lemko ethnic group

The remarks presented before, concerning economic and demographic relations, refer to the whole of the central Carpathian Mts. in general. They do not apply, however, to two mountainous areas - the Low Beskid and the Jaworzyna Range. These two areas, namely, are characterized by different conditions of historical development, related to World War II and to the virtually complete population exchange resulting from the war. Before 1946 these areas were inhabited by an ethnic group of Ruthenian mountaneers, called Lemko. The Lemko inhabited, within the boundaries of the present Nowy Sącz voivodship, 69 villages with total population of more than 52 thousand. Their total area was 84 thousand hectares, i.e. some 17% of the present Nowy Sącz voivodship. Lemko were quite an isolated ethnic group, almost self-sufficient, although they came to this country as far back as in the 14th or 15th century. Lemko were Greek-Catholics and only in 19th century some of them became orthodox. Before the World War II as many as 20% of Lemko had already been orthodox. Their main occupation was agriculture, and only in some localities in the valley of the river Poprad, where mineral water springs exist, some Lemko were employed in tourism. Because of the armed resistance against Polish authorities and the military operations connected with it, taking place immediately after the war (in the years of 1946 and 1947), a part of villages inhabited by Lemko population were burned down or significantly destroyed, while their inhabitants were resettled, mainly to the Soviet Union (approximately 34 thousand persons) and to the Western and Northern regions of Poland (about 18 thousand). Polish population from the neighbouring areas started to settle in the abandoned villages. But this process of settlement in the deserted villages went on very slowly and did not yield expected results. Some settlers left these areas after just a few years and moved to the more developed regions of Poland (e.g. to towns of Upper Silesia). Thus, consequently, there are presently only some 22 thousand people living in the areas previously inhabited by the Lemko group i.e. 43% of the population number of before World War II.

The least of new settlers came into the villages located in the Low Beskid Mts. (the Eastern part of the Nowy Sącz voivodship), adjacent to the Czechoslovak border. These areas are until now lacking good roads bus transport, shops, schools and other services. Table 1 indicates that population numbers in these areas have been decreasing since 1970. Four villages are already completely depopulated, and in two other ones there are now only few families living still. It seems that this depopulation process cannot be slowed down and terminated until better living conditions for the inhabitants of this area are created, primarily through tourism development. This applies first of all to the Low Beskid Mts., through which Ropa river flows. In the valley of this river, in Wysowa, there are mineral water springs which gave beginning to a spa in the interwar period. Tourism and health resort development in the Ropa valley is, however, until now very limited. In 1986 there were only 404 beds in tourist facilities, 450 beds in private guest rooms, 337 beds in holiday and health resort facilities, and 267 camping places. Most of these are in the town of Wysowa.

Situation is much better in the second area i.e. one located in the Poprad river watershed. Although population here is also lower than before the war (by some 40%), there is no net out-migration and village depopulation, but, to the contrary - a steady, though slow development. This area is well equipped with transport connections (electrified railroad line) going down the Poprad river valley along the border with Czechoslovakia. The road was modernized in the '60s. Almost 50% of village population from this area work outside agriculture (Fig. 2), either in Nowy Sącz or in the local tourism and recreation centers. In the town of Piwniczna on Poprad one of the very few road border crossing points between Poland and Czechoslovakia is located.

The dominating function of most villages and towns is of sanatorium health resort or tourism type. There are namely numerous mineral water springs in the Poprad valley - in Krynica, Muszyna, Żegiestów and elsewhere. The total number of beds in state - owned tourist and sanatorial facilities is almost 17 thousand (about 30% of all those in the central Carpathian Mts.). Sanatoria and vacation houses were constructed not only in towns, but also in rural villages. That is why occupational structure of inhabitants of these villages has changed significantly. As it has been already mentioned, rural settlements located in the Poprad valley have 50-70% of population working outside agriculture (Fig. 2).

Progressive urbanization of this area is seen in the high share of double-occupational households - some 60% - and in the rapid growth of private construction suitable for hotel service. The number of inhabitants who do not own a farm is also steadily increasing. Their share is now at 35%. Their income is primarily gained from hotel services.

The most marked transformations of the natural and antropogenic landscape which took place after World War II, and resulted from the resettlement of Lemko-population and the inflow of new settlers to the areas considered are: first, large increase of the forested area, and, second, decrease of the lower elevation range of settlements, reaching presently to the bottom of the river valleys. There is no other case in Poland - except Bieszczady, the Eastern part of Polish Carpathian Mts. - where such an extent of land use changes has occurred in the post-war period. This phenomenon can best be seen in the Low Beskid, where forest has covered almost entirely the surfaces of many previous village. Figure 4 shows the current forest reach, accounting also for its increments after World War II.

Ownership and farm-size structure of agriculture within the areas considered - the Low Beskid and the Poprad valley - differs as well from that found in the other parts of the central Carpathian Mts. First of all the shares of land cultivated by state and cooperative farms are higher than in the other parts. These shares amount together to 28% (7 thousand hectares), the highest share in all of the central Carpathian Mts. State farms are mainly located in depopulating villages and take up also the land left by the new settlers. The state and cooperative land shares are especially high in the Low Beskid. They are much less pronounced in the Poprad river valley, where small farms of 3 to 4 hectares dominate. In the Island Beskid farms are slightly bigger and the dominant group is constituted by the 5-8 hectares farms. The main direction of their activity is dairy and meat cattle raising, and not so much sheep husbandry. In the Poprad river valley the significance of livestock production is lower, while potatoes and vegetables gain in importance.

Table 1. Growth of rural population numbers in the Nowy Sącz voivodship in the years 1950-1986

Year	Population in thous- and Total	Rural population: characteristics						
		agricul- tural	agricul- tural suburban	agricul- tural tourist	tourist	suburban	populated by tenko group	
							A	B
1950	341.4	145.0	101.9	24.0	22.8	32.8	7.4	7.5
1960	367.5	148.9	109.3	26.8	27.7	34.8	9.7	10.3
1970	397.5	158.4	117.3	30.3	30.7	38.7	11.0	11.0
1978	404.8	156.6	122.2	30.7	32.5	38.8	11.9	10.8
1986	431.9	163.0	130.3	32.9	39.4	41.6	13.6	11.1

Note: A - villages situated in the Poprad river valley,
B - villages situated in the low Beskid Mountains.

Table 2. Transformation of the employment structure of rural population in the Nowy Sącz voivodship in the period 1970-1986

Year	Professionally active in thousand		
	Total	Non-agricultural	% of total
1970	213.7	66.4	31.1
1978	211.6	88.6	41.8
1986	226.0	106.0	46.9

Table 3. Non-agricultural employment of rural population in the Nowy Sącz voivodship according to farm sizes in 1986

Farm size classes, hectares	Number of farms	% of population employed outside agriculture
0.5-2	25 459	64.5
2-5	34 742	45.7
5-7	11 535	36.6
7-10	7 535	32.2
10-15	3 556	27.6
over 15	1 281	24.9

Table 4. Directions of the post-primary education of the youth from the mountainous regions
(results of the questionnaire survey)

Young people total number	Directions of schooling									
	Basic vocational training	in that:		High schools			Technical total	Technical agricultural	Not established	Lack of data
		agri-cultural	Total	in that:						
				General high schools	Profes-sional high schools	agricul-tural				
1	2	3	4	5	6	7	8	9	10	11
1162	712	70	391	90	111	14	78	3	112	58
100.0%	61.3	6.3	33.7	7.7	10.5	1.2	6.7	0.3	9.6	5.0
	2:1	3:2	4:1	5:1	6:1	7:1	8:4	9:8	10:4	11:1

Fig. 1. Population numbers per 100 hectares of agricultural land in the Polish Carpathian Mts. and in the submountainous zone.

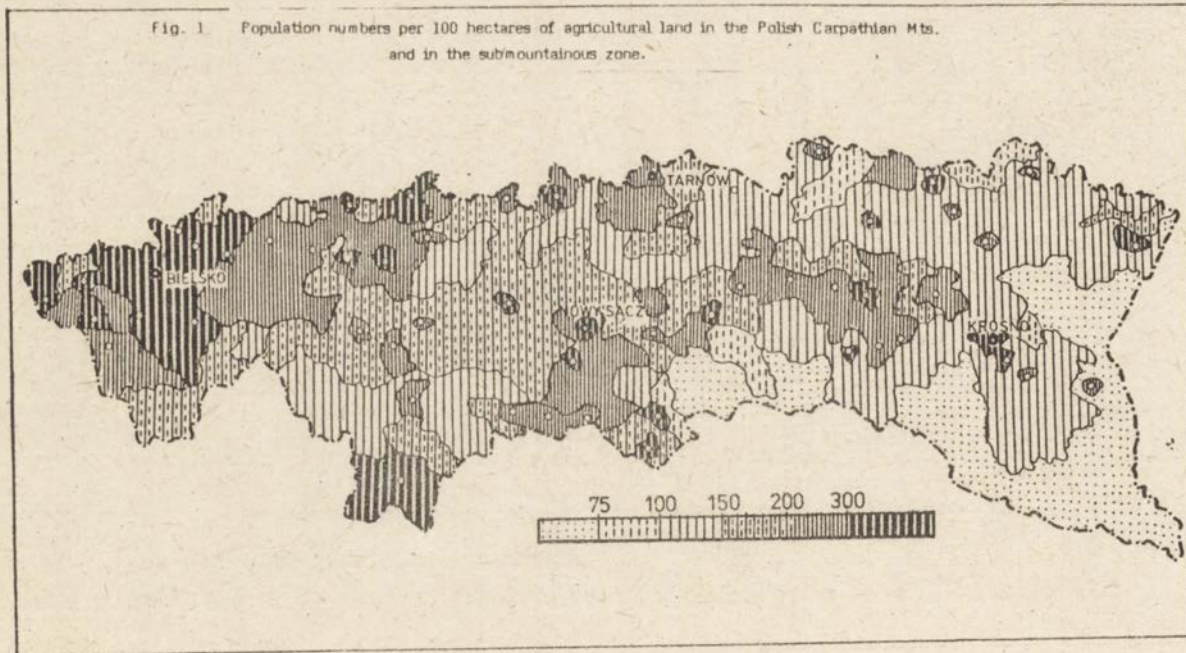
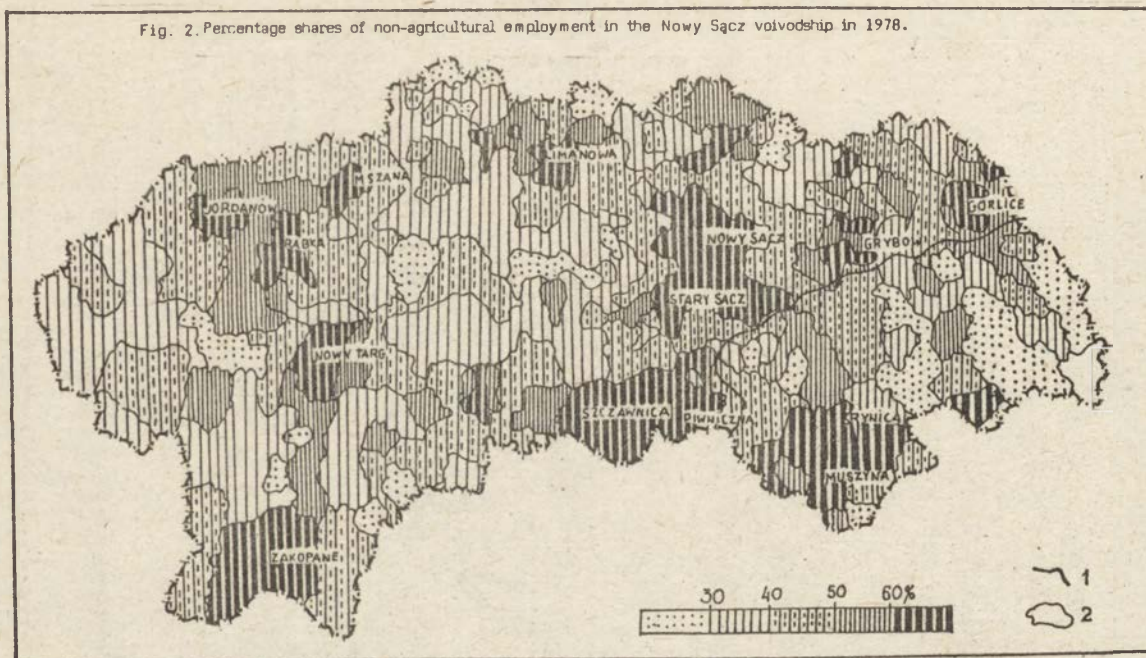


Fig. 2. Percentage shares of non-agricultural employment in the Nowy Sącz voivodship in 1978.



1 - Northern boundary of the Lemko-settled land before 1945

2 - Villages abandoned by people

Fig. 3. Functional types of villages in the Nowy Sącz voivodship /according to Jackowski/.

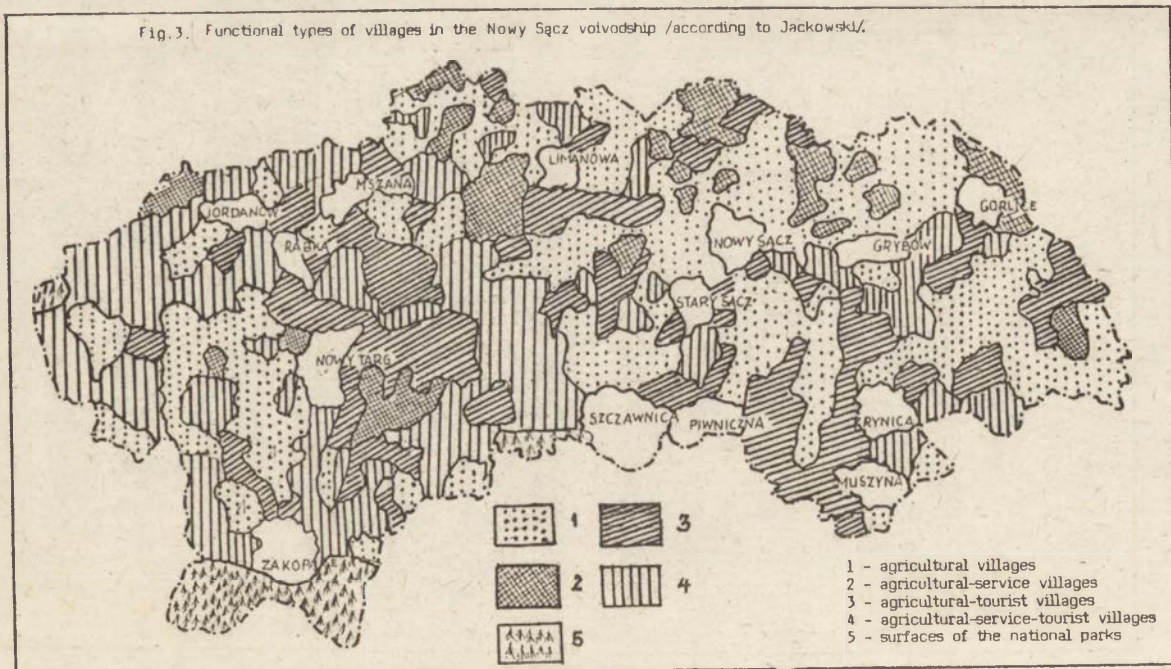


Fig. 4. Forest area increase in the Low Beskid after 1945

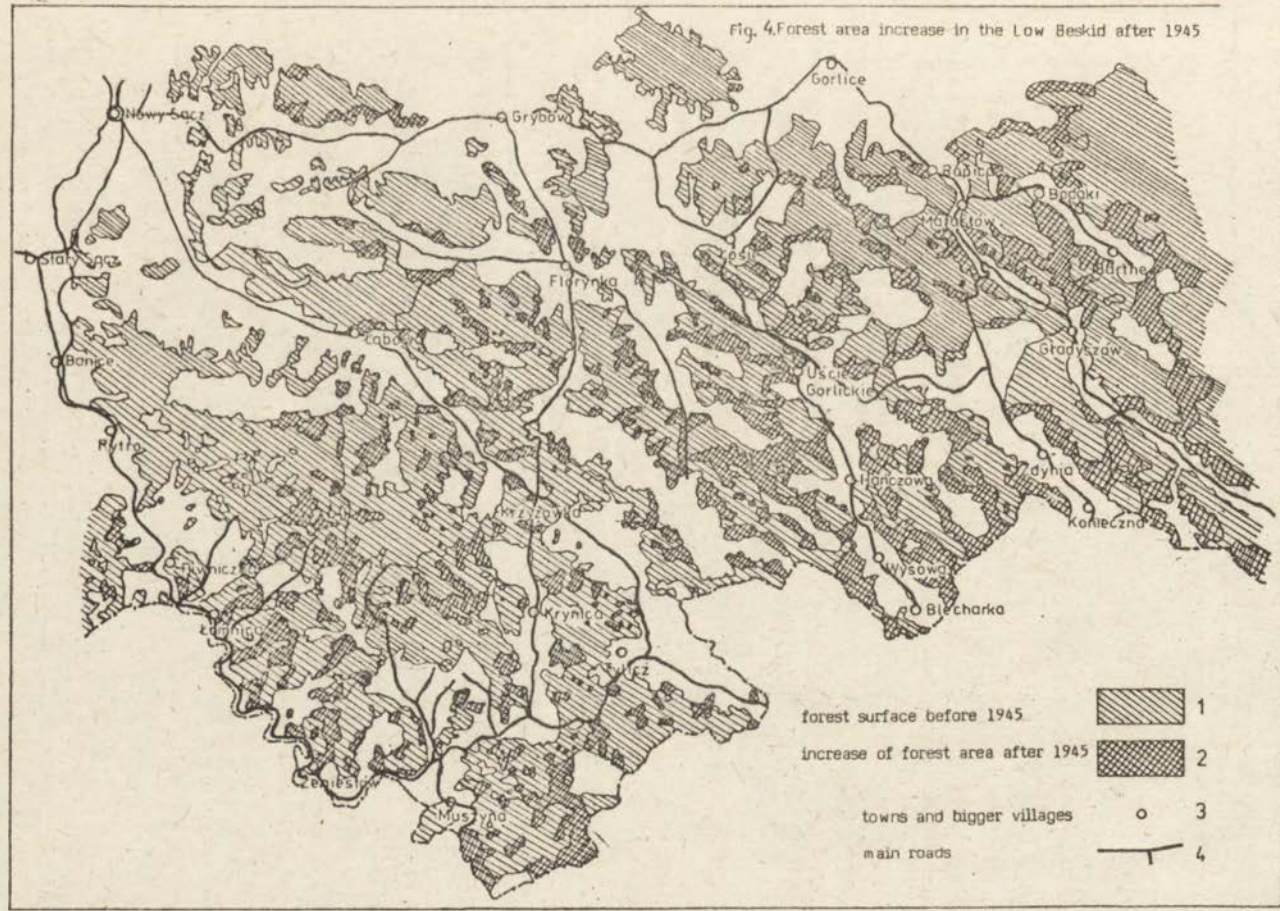
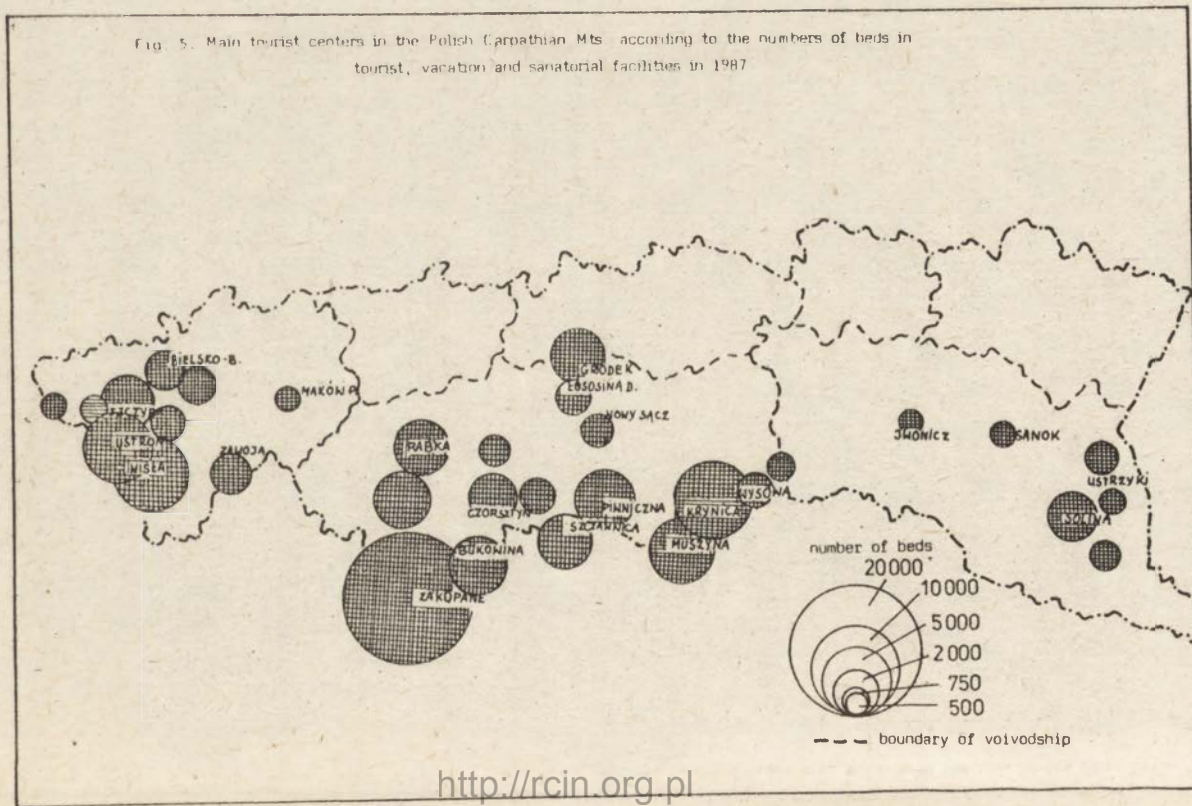


Fig. 5. Main tourist centers in the Polish Carpathian Mts. according to the numbers of beds in tourist, vacation and sanatorial facilities in 1987



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SOCIO-ECONOMIC PROBLEMS OF POLISH CARPATHIANS

Introduction

The authors' aim was to describe the settlement system in the Polish Carpathians and the agriculture as a basic function of these mountains. Although a depopulation process is observed in other European mountains, as well as a decline of traditional agriculture, these processes are hardly seen in the Carpathians and many important functions are still being carried out there.

The Polish Carpathians are divided into 28 physical-geographical regions (Czeppe, German 1980), forming the macroregion - those of foothills (10 regions) and proper mountains (18 regions) - Fig. 1. These regions were divided by the authors into vertical zones. On the basis of maps of the 1:100 000 scale, all Carpathian localities were classified according to stage and region. Due to this procedure, it was possible to calculate total population numbers for each stage and region (Table 1, Fig. 2). Villages were classified into 12 physiognomical types (Chilczuk 1970; Pogodziński 1975). Data concerning crops, livestock breeding (Statystyka Gmin 1983) and the agricultural production (Gałczyńska, Kulikowski 1986) were also shown by stages and regions.

From the point of view of hypsometry, Polish Carpathians are medium-height mountains - of the total area of 20 500 sq. kms (6.6% of total Polish surface), some 2/3 lie between 200 and 600 m above the sea level (Table 1). The lower, Northern part (the foothills) covers 9 500 sq. kms (42%), the higher, Southern one (the mountains) - 11 000 sq. kms (58%). The areas of particular stages decrease with the altitude. The culmination of the whole Polish Car-

pathian is Mt. Rysy (2499 m) in the Tatras, while peaks of the Beskid ranges reach 1300-1700 m, and the altitudes of the northern rim of the foothills is about 200 m. Within the mountain zone there are intramontane basins, whose floors lie between 300 and 400 m a.s.l., and vast regions with gentle relief of the foothill type, situated at 500-800 m.

1. Population distribution

The total population number in the Carpathians amounted in 1978 to 2306.6 thousand (5.8% of Polish total), of which 1271.2 thousand (55%) in the foothills zone, and 1035.4 thousand (45%) - in the mountain zone (Table 1). Population density amounted to 113 person/sq km for the whole area (112 - for Poland), 133 - in the foothills, 94 - in the mountains, with strong diversification by regions and stages (Table 1, Fig. 2).

The population density decreases with altitude - Southward, toward the Tatras, and South-Eastward, toward the Bieszczady Mountains. The intramontane basins, where most of the Carpathian cities lie, show considerable population densities. The low density in the South-Eastern regions is the result of the post-war deportation of the Lemko population (1944-47), not quite replaced by Polish settlers.

The upper settlement limit reaches 850 m in the North-West, 1100 m - in the Tatras, 900 m - in the Bieszczady, and 650 m only in the Beskid Niski.

2. Settlement distribution

a) Cities

Polish Carpathians are poorly urbanized. There are 58 cities and the share of urban population amounted here in 1978 to only 33% (Polish average being 57%). The largest cities are those of Bielsko-Biała (108 thousand inhabitants in 1978, 177 thousand - in 1986), Nowy Sącz (72 thousand inhabitants in 1986), and there are also some with population numbers between 20 000 and 40 000. The smallest cities have less than 2000 inhabitants. There are nearly the same numbers of cities and of urban population in the foothills zone and in the mountain zone - Table 1. The share of the urban population in the total population varies in particular regions and stages. The most urbanized are basins, especially the North-Western ones, situated at the altitude of 200-400 m. The highest altitude is that of the city of Zakopane, at the foot of the Tatras - 740-900 m a.s.l.

b) Villages

The number of population in 1809 Carpathian villages is also highly differentiated. The largest villages have several thousand inhabitants each (i.e. Kozy near the town of Bielsko-Biała city - 9000), and the population number of the smallest ones is below 100 persons. In the former Łemko country there are 80 villages without population.

The most popular physiognomic type of the Carpathian villages is "łańcuchówka" - chain-like village (Germ. "Waldhufendorf"), with the houses stretching along the valley axis with the agricultural lands on slopes. There are 534 villages of this type (40% of the total number). In the lower parts of Carpathians, with less diversified relief, or in the suburban zones, there are villages showing more compact building pattern - "ulicówka" (street-like village), 489 villages (27%), and "wielodrożnica" (road-node-like village) - 386 villages (21%). The dispersed pattern of rural settlements is also often met in Carpathians, especially in the suburban zones. There are also villages with urban type of buildings - medieval cities, which lost their urban rights - and the villages urbanized due to tourism and industry.

With respect to the shares of the discussed types of the villages in the total rural population and the area, the chain-like villages cover 26% of the area, and the greatest number of population (19%) belong to the road-node-like ones. The former ones are typical of the mountains, the latter ones (together with the street-like villages) - of the foothills. The villages situated in the North and West are rather bigger, even on the altitudes of 600-900 m a.s.l - and those in South-East are smaller.

3. Land use

a) Distribution of basic land use forms

In the Carpathians, agricultural land prevails over forests - 51%:42% (Table 2). The category of agricultural land contains arable land (37% of the total area of the Carpathians), pastures and meadows (13%) and orchards (1%). There is less of agricultural land in the mountains and more forests than in the foothills, and the differentiation of the land use between particular regions and stages is even greater (Table 2). The shares of the agricultural land decrease with altitude, from 68% (200-300 m) to 1% (over 1000 m). To the contrary, the percentage share of forests increases with the altitude - from 23% (200-300 m) to 98% (over 1000 m).

b) Land use orientations

Using the methods of successive quotients (Kostrowicki 1960; Kulikowski 1975), the authors calculated the land use orientations for 28 physical-geographical regions and 7 stages of Carpathians. These orientations are shown in Table 3 and Fig. 3. The foothills zone has the arable orientation with the forests (O_4L_2), the mountains - the forest orientation with the arable lands (L_4O_2), and the whole Carpathians - the forest-arable orientation (L_3O_3). The growing with altitude share of the forest in the total area of particular stages is expressed by a sequence of land use orientations - from the arable one with the forest (O_4L_2) between 200 and 300 m, to L_4O_2 (forest with the arable land) in the 800-1000 m zone, and L_6 (domination of forest) over 1000 m.

4. Crops

The basic crops of the Polish Carpathians are cereals (mostly wheat, rye and barley), potatoes, fodder plants, vegetables, sugar beets, rapeseed and agrimony. Wheat is cultivated mostly in the foothills, and its share in the sowed area decreases with altitude (from 22 down to 10%). The pattern for rye is similar (20-10%). To the contrary, the greatest shares of oats (over 14%) are observed in the higher regions of South-Eastern and South-Western Carpathians. In the mountains the share of barley is also considerable (over 8%). These 4 cereals cover nearly a half of the sowed area in the Carpathians (Table 3). This share diminishes with the altitude growth - from 52% (200-300 m) to 32% (800-1000 m) - (Table 3, Fig. 4).

The share of potatoes in the sowed area amounts to about 17% in the Carpathians and shows no distinct variations between the regions and the stages.

5. Livestock breeding

The animal production is based in Carpathians on meadows, pastures, root crops, cereals and fodder crops (mostly trefoil). The share of the latter ones in the sowed area is estimated at 12%.

The Carpathians and especially their foothills, where the total livestock in conventional units (500 kg) per 100 ha of the agricultural land amounts to 100-110, play considerable role in the animal production of Poland. The greatest share in this number (some 93%) is that of cattle, raised for milk by the small private farms owners, and for meat - by the great, state-owned

holdings in the South-Eastern Carpathians. The cattle numbers per 100 ha of agricultural land are the highest in Poland - 70-80. The second position in the livestock is that of pigs (50-80 heads per 100 ha of the agricultural land). Sheep are kept mostly at the foot of the Tatras - and in the Bieszczady Mts.

With the growth of the altitude the number of cattle per 100 ha of the agricultural land increases - due to the above mentioned concentration in the sub-Tatran area, in the 800-1000 m zone (Table 3, Fig. 5).

6. Agricultural production

The Carpathian agriculture is characterized by poor productivity, due to both natural and economic conditions. Only in the foothill zone the national average is reached, owing to better soils and considerable labour inputs (Kulikowski 1982).

Main orientations of gross production are: wheat + sugar-beet + cattle in the foothill zone, fodder + cattle with cereals and pigs in the Western part of the mountain zone, and rye + wheat + oats + potatoes + cattle with fodder plants and pigs West of Nowy Sącz city.

The volume of gross production in conventional units per 1 ha of the agricultural land amounts in Carpathians to 43-49 in the foothill zone and to 34 in the mountain zone. Table 3 and Fig. 6 show this volume in the particular regions and stages. The magnitude of the gross production diminishes with altitude - from 52 (200-300 m) to 22 (800-1000 m).

Commercial production of Carpathian agriculture is estimated at 12 conventional units per 1 ha of agricultural land - 14 in the foothills, 9 in the mountains. This level is lower by 1/3 than the national average. The typical orientation of commercial production is cattle-meat with pork, poultry meat and cereals. The volumes of commercial production are poorly diversified by regions and stages. These volumes diminish with altitude, from 15 (200-300 m) to 8 (800-1000 m).

The share of the commercial production in the agricultural gross product amounts in Carpathians to 28 only (Polish average - 52%), with no considerable differences between regions and stages (Table 3, Fig. 6). This share diminishes with altitude between 200 and 600 m, then it slightly grows, to 36% in the 800-1000 m zone.

Conclusions

Analysing the selected socio-agricultural problems of the Polish Carpathians, the authors treated the physical-geographical region as the basic unit of their research. In their opinion, such a unit is very useful in investigations of the mountainous areas, which show a great diversity of natural conditions. Considerable differences of the influence of the given variables on selected demographic, settlement and agricultural phenomena, between the intramontane basins and the surrounding mountains, were observed.

The results obtained encourage the authors to extend the program of their economic-geographical investigations of the Carpathians (especially related to agriculture) in the context of the vertical and horizontal division of these mountains. In this division connections between population, agriculture and geographical environment are seen better. This approach gives an evaluation of the use of the mountain space by agriculture, or bonitation of the natural environment from the point of view of the agriculture.

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Table 1. Population in the Carpathians (1978) by regions and stages - population numbers shares of urban population in the total one and population densities

Regions and stages	Total population (in thousand)	Share of urban population	Population density per 1 sq·km
1. Pogórze Śląskie	187.0	56	248
2. Pogórze Wielickie	269.6	26	130
3. Pogórze Ciężkowickie	152.4	3	107
4. Obniżenie Gorlickie	55.3	48	254
5. Pogórze Strzyżowskie	146.5	32	135
6. Kotlina Jasielsko-Krośnieriska	125.6	56	244
7. Pogórze Jasielskie	40.5	-	124
8. Pogórze Dynowskie	199.7	7	101
9. Pogórze Bukowskie	76.2	50	177
10. Pogórze Przemyskie	18.3	-	25
1-10. Total foothills	1271.2	30	133
11. Beskid Śląski	63.6	46	125
12. Kotlina Żywiecka	101.2	27	246
13. Beskid Mały	187.4	65	409
14. Beskid Żywiecki	47.4	18	68
15. Beskid Średni	49.9	11	114
16. Pogórze Orawsko-Jordanowskie	38.5	10	86
17. Kotlina Orawsko-Nowotarska	60.8	43	110
18. Rów Podtatrzański	36.9	77	332
19. Tatry	0.1	-	0
20. Pieniny	8.1	-	72
21. Pogórze Spisko-Gubałowskie	36.1	-	107
22. Gorce	46.5	27	94
23. Beskid Wyspowy	91.2	18	105
24. Kotlina Sądecka	90.7	75	294
25. Beskid Sądecki	56.0	52	82
26. Beskid Niski	69.6	10	35
27. Góry Sanocko-Turczańskie	34.3	32	38
28. Bieszczady Zachodnie	17.2	-	12

11-20. Total mountains		1035.4	38	94
1-28. Total Carpathians		2306.6	33	113
Stages of the foothills zone	200-300 m	740.6	33	147
	300-400 m	456.2	29	113
	400-500 m	73.8	-	206
	500-600 m	0.5	-	5
Stages of the mountains zone	200-300 m	72.8	84	656
	300-400 m	325.1	48	169
	400-500 m	318.1	26	88
	500-600 m	173.9	34	59
	600-800 m	86.8	10	46
	800-1000 m	58.7	48	126
	over 1000 m	0.1	-	2
Stages of the Carpathians:	200-300 m	813.4	38	158
	300-400 m	781.3	37	131
	400-500 m	391.9	21	99
	500-600 m	174.4	34	57
	600-800 m	86.8	10	46
	800-1000 m	58.7	48	126
	over 1000 m	0.1	-	2

Table 2. Land use structure in the Carpathians

Regions and stages	Total area	Agricultural land				forest	water	tech- nical uses*	other		
		total	arable land	orcha- rds	mea- dows					pastu- res	
		km ²	shares of the total area								
1.	Pogórze Śląskie	755	73.1	56.8	1.5	5.2	9.6	13.7	5.6	7.0	0.2
2.	Pogórze Wielickie	2068	67.2	51.3	4.4	5.4	6.1	25.3	1.3	6.0	0.2
3.	Pogórze Ciężkowickie	1419	67.2	55.4	2.3	2.4	7.1	25.2	1.7	5.8	0.1
4.	Obniżenie Gorlickie	218	74.9	61.9	1.3	3.1	8.6	16.6	1.1	7.3	0.1
5.	Pogórze Strzyżowskie	1087	70.1	58.6	1.2	3.9	6.4	22.4	0.7	6.6	0.2
6.	Kotlina Jasielsko-Krośnieńska	515	80.9	57.2	1.7	12.0	10.0	9.2	1.6	7.7	0.3
7.	Pogórze Jasielskie	327	68.3	51.7	0.7	7.7	8.2	24.7	1.2	5.7	0.1
8.	Pogórze Dynowskie	1987	65.2	53.3	1.3	3.6	7.0	27.6	1.0	6.0	0.2
9.	Pogórze Bukowskie	430	61.8	45.3	0.6	4.6	11.2	31.1	1.8	5.0	0.3
10.	Pogórze Przemyskie	729	35.6	24.6	0.6	1.6	8.8	59.9	1.4	2.9	0.2
1-10. Foothills zone total		9535	65.3	51.5	2.0	4.3	7.5	27.2	1.5	5.8	0.2
11.	Beskid Śląski	510	41.6	28.2	1.3	3.6	8.4	53.1	0.9	3.6	0.4
12.	Kotlina Żywiecka	411	50.8	38.1	1.4	3.8	7.5	39.8	1.9	6.7	0.2
13.	Beskid Mały	458	42.6	32.9	1.6	3.1	5.1	49.1	2.4	4.8	0.2
14.	Beskid Żywiecki	710	35.4	24.3	0.4	2.6	8.1	60.4	1.1	2.6	0.3
15.	Beskid Średni	437	49.6	41.4	0.9	2.5	4.8	44.6	1.7	3.9	0.2
16.	Pogórze Orawsko-Jordanowskie	450	54.9	40.1	0.0	8.2	6.6	40.3	0.7	4.1	0.0
17.	Kotlina Orawsko-Nowotarska	551	63.6	41.9	0.0	14.0	7.7	27.3	2.3	3.0	3.7
18.	Rów Podtatrzański	111	26.0	14.3	0.0	8.3	3.4	69.7	0.9	3.4	0.1
19.	Tatry	193	1.2	0.0	0.0	0.0	1.2	97.8	0.2	0.8	0.0
20.	Pieniny	112	52.5	37.8	0.0	7.4	7.3	40.0	4.0	3.2	0.3
21.	Pogórze Spisko-Gubałowskie	336	57.3	38.2	0.1	11.5	7.5	35.5	1.4	3.1	2.6
22.	Gerce	494	43.2	29.1	2.1	5.3	6.8	52.5	1.4	2.6	0.2
23.	Beskid Wyspowy	867	56.2	41.1	5.0	4.1	6.0	38.3	1.5	3.8	0.1
24.	Kotlina Sądecka	309	61.2	47.5	7.1	1.1	5.5	31.3	3.2	4.0	0.3
25.	Beskid Sądecki	683	34.6	18.8	0.7	2.9	12.2	61.6	1.2	2.4	0.2
26.	Beskid Niski	1999	37.2	18.3	0.3	5.1	13.5	58.9	0.9	2.8	0.1
27.	Góry Sanocko-Turczańskie	902	34.0	17.5	0.1	2.9	13.4	61.2	1.3	3.4	0.1
28.	Bieszczady Zachodnie	1421	16.7	6.8	0.0	1.4	8.5	78.5	2.5	1.5	0.9

11-28. Mountain zone total		10954	40.0	25.5	0.9	4.5	9.1	54.8	1.6	3.0	0.6
1-28. Carpathians total		20489	51.4	37.2	1.4	4.4	8.4	42.5	1.5	4.3	0.4
Stages of the foothills zone	200-300 m	5039	68.0	54.0	2.0	4.9	7.2	23.4	1.9	6.4	0.2
	300-400 m	4035	62.5	49.2	2.0	3.8	7.5	30.8	1.2	5.4	0.1
	400-500 m	359	58.1	41.5	2.8	2.2	11.6	37.3	0.6	3.9	0.1
	500-600 m	102	62.2	45.3	0.0	0.3	16.6	32.9	0.3	3.0	1.7
Stages of the mountain zone	200-300 m	111	49.3	37.9	1.8	2.6	6.9	37.1	6.4	4.8	0.2
	300-400 m	1919	48.4	35.4	2.0	2.6	8.4	44.3	2.2	4.9	0.2
	400-500 m	3612	40.2	25.6	1.4	3.7	9.5	54.3	2.0	3.2	0.2
	500-600 m	2932	35.5	20.9	0.4	4.5	9.7	60.8	1.1	2.5	0.1
	600-800 m	1872	39.4	23.6	0.2	7.1	8.6	55.8	1.0	2.4	1.4
	800-1000 m	464	40.6	25.2	0.1	7.2	8.2	51.6	0.9	2.5	4.3
	over 1000 m	44	1.2	0.0	0.0	0.0	1.2	97.8	0.2	0.8	0.0
Stages of the Carpathians	200-300 m	5150	67.8	53.8	1.9	4.9	7.2	23.5	2.0	6.4	0.2
	300-400 m	5954	58.1	44.9	2.0	3.4	7.7	35.0	1.5	5.1	0.2
	400-500 m	3971	41.9	27.1	1.6	3.5	9.7	52.7	1.8	3.3	0.2
	500-600 m	3034	35.5	20.9	0.4	4.5	9.7	60.7	1.1	2.5	0.1
	600-800 m	1872	39.4	23.6	0.2	7.1	8.6	55.8	1.0	2.4	1.4
	800-1000 m	464	40.6	25.2	0.1	7.2	8.2	51.6	0.9	2.5	4.3
	over 1000 m	44	1.2	0.0	0.0	0.0	1.2	97.8	0.2	0.8	0.0

* Settlement, industrial and transport areas.

Table 3. Selected parameters of land use and agriculture in Carpathians

Regions and stages		Land use orientations	main crops in percentages of sowed area		livestock in head per 100 ha of agricultural		agricultural production		
			4 cereals	potatoes	cattle	conventional units	in grain units per 1 ha of agricultural land		production in total one
							total	commercial	
1		2	3	4	5	6	7	8	9
1.	Pogórze Śląskie	O ₅ L ₁	51.3	17.9	63.9	72.7	51.0	13.6	26.7
2.	Pogórze Wielickie	O ₄ L ₂	51.7	17.3	65.6	69.8	57.8	15.2	26.3
3.	Pogórze Ciężkowickie	O ₄ L ₂	53.3	17.2	84.0	97.2	53.8	14.4	26.8
4.	Obniżenie Gorlickie	O ₅ L ₁	51.8	16.2	98.7	95.8	40.1	13.5	33.7
5.	Pogórze Strzyżowskie	O ₅ L ₁	52.6	17.1	79.3	93.2	52.5	17.9	34.1
6.	Kotlina Jasielsko-Krośniewska	O ₅ L ₁	47.8	20.8	71.9	74.3	49.6	11.7	29.5
7.	Pogórze Jasielskie	O ₄ L ₂	52.1	19.3	75.2	77.6	45.1	12.9	28.6
8.	Pogórze Dynowskie	O ₄ L ₂	50.0	15.7	77.4	82.4	45.9	13.7	29.8
9.	Pogórze Bukowskie	O ₄ L ₂	47.6	15.3	61.6	62.6	35.1	8.3	23.6
10.	Pogórze Przemyskie	O ₄ L ₂	45.8	12.2	54.0	58.6	25.1	7.9	31.5
1-10. Foothills zone total		O ₄ L ₂	51.5	16.5	72.5	80.3	48.7	14.0	28.7
11.	Beskid Śląski	L ₄ O ₂	28.9	16.8	77.2	79.0	40.8	6.5	15.9
12.	Kotlina Żywiecka	L ₃ O ₃	37.1	19.0	83.4	83.0	44.8	10.8	24.1
13.	Beskid Mały	L ₄ O ₂	41.3	19.0	74.5	74.8	48.2	8.6	17.8
14.	Beskid Żywiecki	L ₄ O ₂	30.1	18.4	72.3	72.0	42.1	6.6	15.7
15.	Beskid Średni	L ₃ O ₃	45.7	16.2	84.9	87.3	45.4	8.6	18.9

16.	Pogórze Orawsko-Jordanowskie		L ₃ O ₃	42.5	16.7	90.4	87.8	32.5	11.4	35.1
17.	Kotlina Orawsko-Nowotarska		O ₃ L ₂ P ₁	37.0	20.7	91.3	93.4	27.5	9.9	36.0
18.	Rów Podtatrzański		L ₅ O ₁	.	.	.	.	.	.	.
19.	Tatry		L ₆	-	-	-	-	-	-	-
20.	Pieniny		L ₃ O ₃	34.9	18.8	59.9	66.6	.	.	.
21.	Pogórze Spisko-Gubałowskie		O ₃ L ₃	39.2	22.8	96.9	113.6	25.5	8.5	33.3
22.	Gorce		L ₄ O ₂	47.1	16.1	78.9	87.3	30.6	8.3	27.1
23.	Beskid Wyspowy		O ₃ L ₃	51.2	15.7	91.5	90.7	51.4	12.6	24.5
24.	Kotlina Sądecka		O ₄ L ₂	54.1	17.0	82.7	85.6	62.5	10.5	16.8
25.	Beskid Sądecki		L ₅ O ₁	36.4	14.5	64.6	61.5	27.1	8.1	29.9
26.	Beskid Niski		L ₄ O ₁ P ₁	44.4	15.1	71.1	67.6	25.0	8.5	34.0
27.	Góry Sanocko-Turczańskie		L ₄ O ₁ P ₁	37.7	14.0	53.5	54.8	24.7	5.8	23.5
28.	Bieszczady Zachodnie		L ₆	36.1	14.5	48.2	50.2	24.9	6.1	24.5
11-28. Mountain zone total			L ₄ O ₂	41.8	17.1	77.6	78.7	33.9	8.6	25.4
1-28. Carpathians total			L ₃ O ₃	47.6	16.8	74.7	79.6	42.6	11.8	27.8
Stages of the foothills zone:	200-300 m	O ₄ L ₂	52.1	17.0	75.5	85.1	52.4	15.4	29.4	
	300-400 m	O ₄ L ₂	50.7	16.9	68.8	74.4	45.5	12.6	27.7	
	400-500 m	O ₃ L ₃	51.0	14.3	76.7	86.5	35.9	10.0	27.9	
	500-600 m	O ₃ L ₂ P ₁	.	.	.	.	.	.	.
Stages of the mountain zone:	200-300 m	O ₃ L ₃	.	.	.	.	.	.	.
	300-400 m	L ₃ O ₃	47.4	16.3	71.8	72.4	40.0	10.0	25.0	
	400-500 m	L ₄ O ₂	43.3	16.1	77.9	77.7	33.9	8.3	24.5	
	500-600 m	L ₅ O ₁	38.7	18.2	70.6	72.1	33.4	8.0	23.9	
	600-800 m	L ₄ O ₂	37.8	20.0	92.6	93.8	26.8	8.8	32.8	
	800-1000 m	L ₄ O ₂	32.0	20.0	96.7	112.2	22.5	8.2	36.4	
	over 1000 m	L ₆	-	-	-	-	-	-	-	

1		2	3	4	5	6	7	8	9
	600-800 m	L ₄ O ₂	37.8	20.0	92.6	93.8	26.8	8.8	32.8
	800-1000 m	L ₄ O ₂	32.0	20.0	96.7	112.2	22.5	8.2	36.4
	over 1000 m	L ₆	-	-	-	-	-	-	-
Stages of the Carpathians:	200-300 m	O ₄ L ₂	52.1	17.0	75.5	85.1	52.4	15.4	29.4
	300-400 m	O ₃ L ₃	49.8	16.8	69.6	73.9	44.1	11.9	27.0
	400-500 m	L ₄ O ₂	44.4	15.9	77.8	78.8	35.1	8.5	24.2
	500-600 m	L ₅ O ₁	38.7	18.2	70.6	72.1	33.4	8.0	24.0
	600-800 m	L ₄ O ₂	37.8	20.0	92.6	93.8	26.8	8.8	32.8
	800-1000 m	L ₄ O ₂	32.0	20.0	96.7	112.2	22.5	8.2	36.4
	over 1000 m	L ₆	-	-	-	-	-	-	-



Foothills Zone

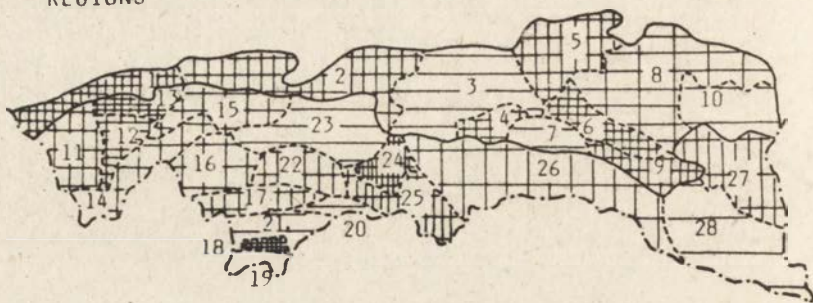
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2. Pogórze Wielickie
3. Pogórze Ciężkowickie
4. Obniżenie Gorlickie
5. Pogórze Strzyżowskie
6. Kotlina Jasielsko-Krośnieńska
7. Pogórze Jasielskie
8. Pogórze Dynowskie
9. Pogórze Bukowskie
10. Pogórze Przemyskie

Mauntain Zone

11. Beskid Śląski
12. Kotlina Żywiecka
13. Beskid Mały
14. Beskid Żywiecki
15. Beskid Średni
16. Pogórze Orawsko-Jordanowskie
17. Kotlina Orawsko-Nowotarska
18. Rów Podtatrzański
19. Tatry
20. Pieniny
21. Pogórze Spisko-Gubałowskie
22. Gorce
23. Beskid Wyspowy
24. Kotlina Sądecka
25. Beskid Sądecki
26. Beskid Niski
27. Góry Sanocko-Turczańskie
28. Bieszczady Zachodnie

Fig. 1. Physical-Geographical Regions of Polish Carpathians.

REGIONS



STAGES

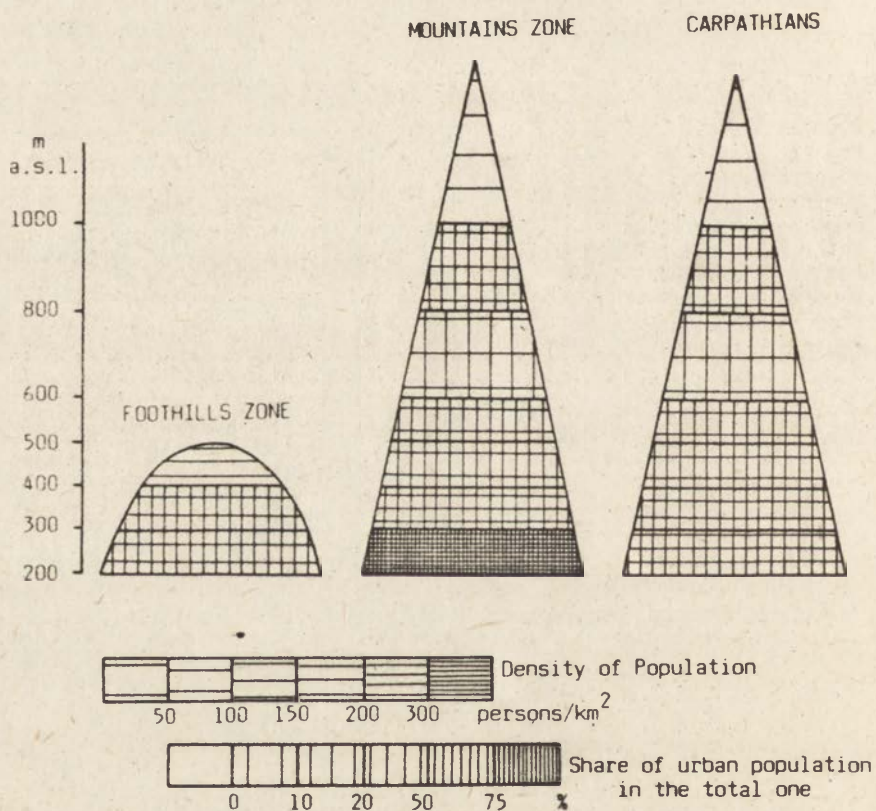
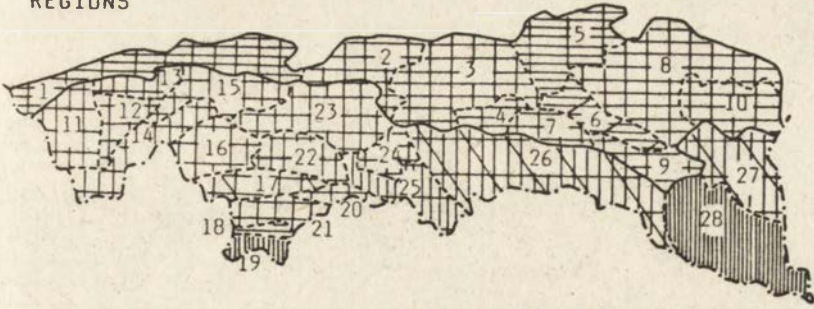


Fig. 2. Population.

REGIONS



STAGES

MOUNTAINS ZONE

CARPATHIANS

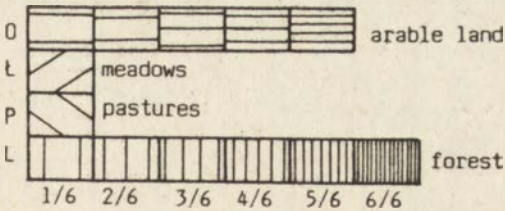
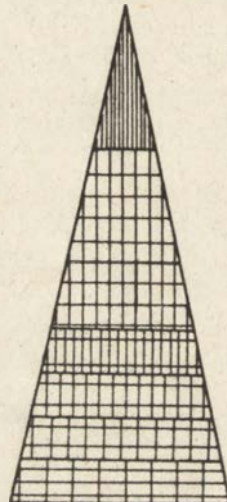
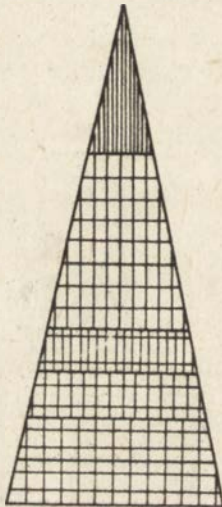
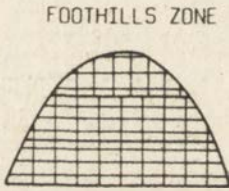


Fig. 3. Land use orientations.

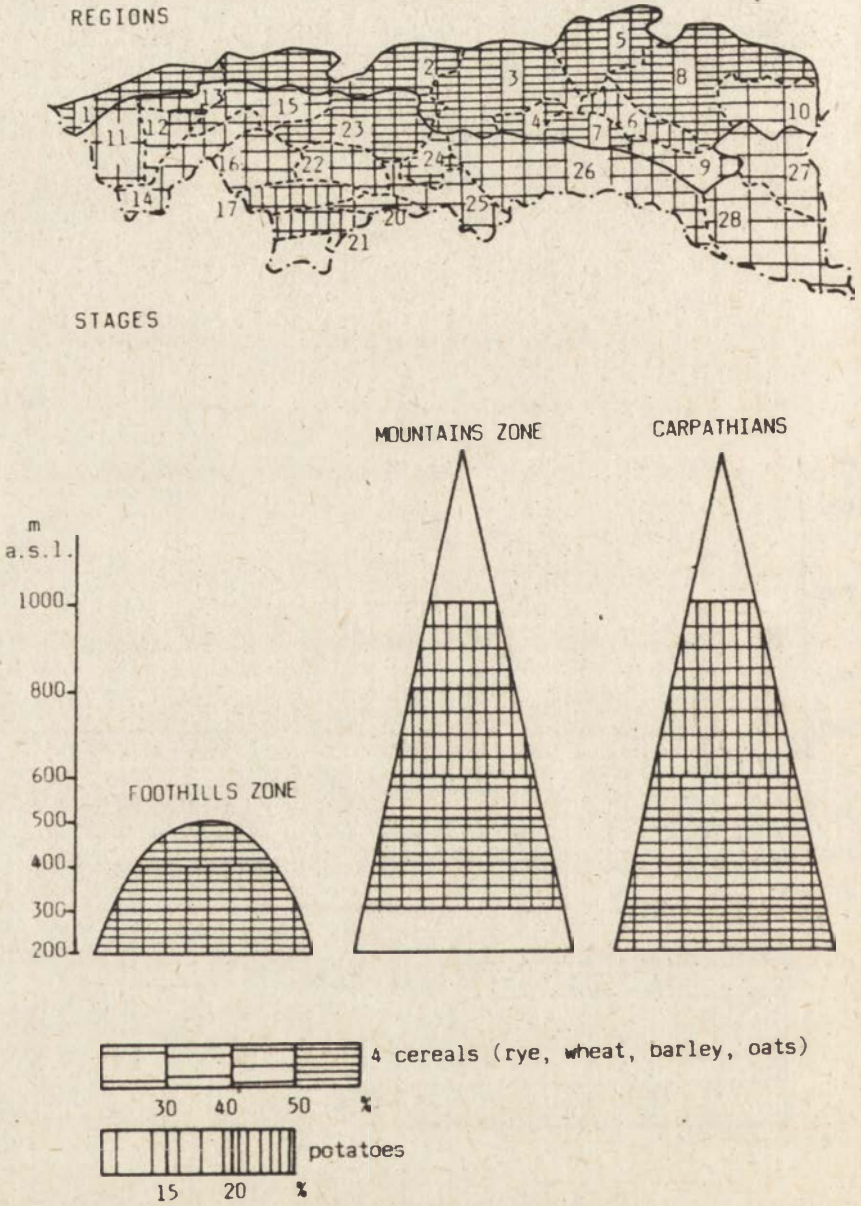
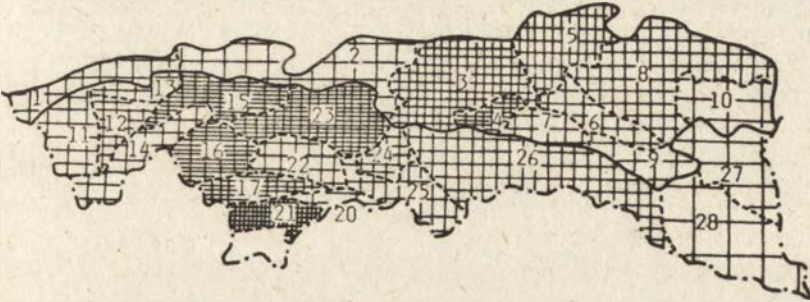


Fig. 4. Main crops in percentages of arable land.

REGIONS



STAGES

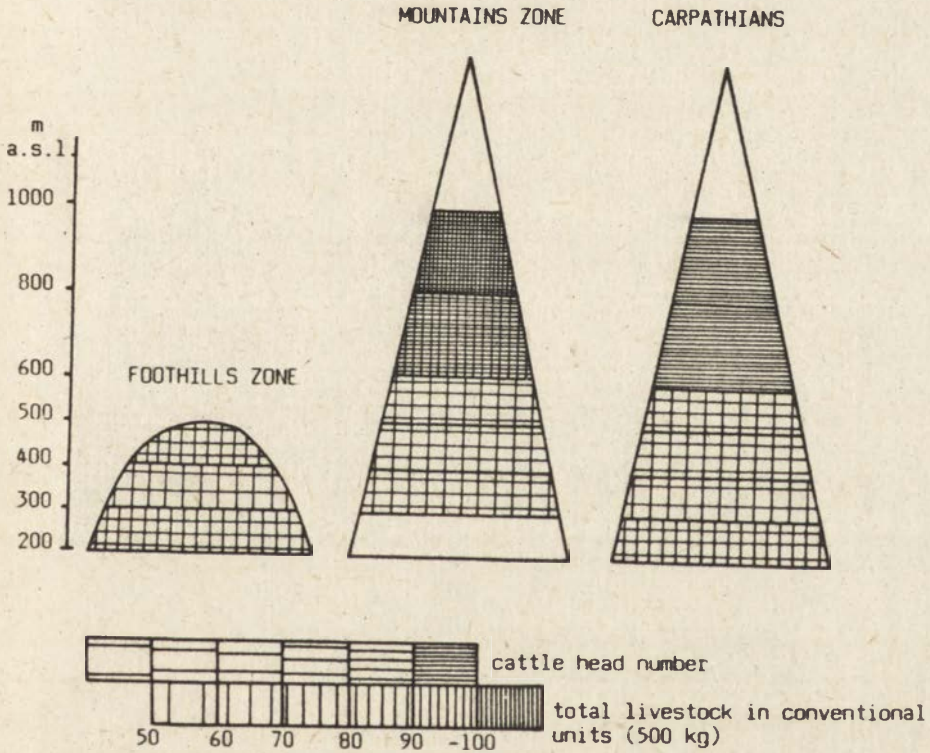
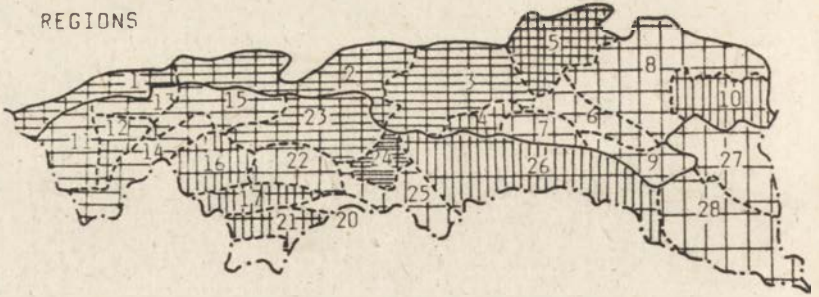


Fig. 5. Livestock breeding per 100 ha of agricultural land.

REGIONS



STAGES

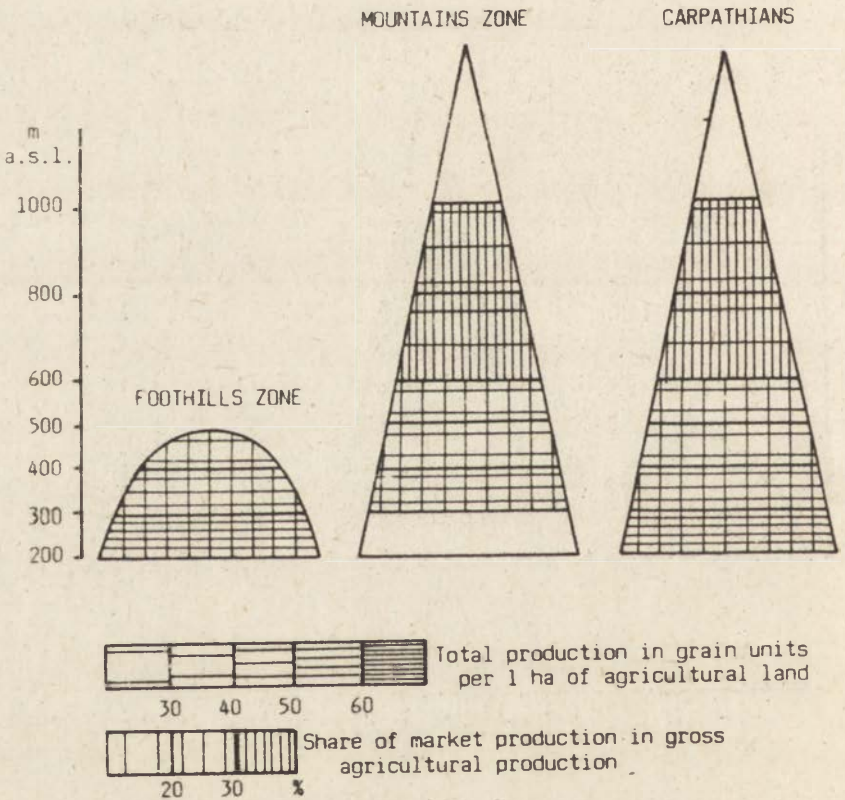


Fig. 6. Agricultural production.

FILIPPO DI DONATO
D'Annunzio University
at Pescara

LES PAYSAGES DES COLLINES DE L'ABRUZZO ADRIATIQUE

Les collines de l'Abruzzo, situées entre le littoral adriatique et les sommets les plus élevés des Apennins, présentent des caractéristiques particulières, d'intérêt géographique considérable aussi bien du point de vue physique qu'humain. Une carte physique, une administrative et une photo prise du satellite permettent de déterminer les aspects saillants du territoire de l'Abruzzo et des régions limitrophes (Fig. 1).

A remarquer en particulier: - les cours des fleuves, torrents et fossés; - la distinction entre régions morphologiques; - les voies de communication et le réseau urbain. Dans ces images, le passage direct de la région de collines à celle de montagnes apparaît immédiatement. Sur le fond des paysages on remarque la chaîne des Apennins (les groupes du Gran Sasso et de la Maiella) d'altitude peu inférieure à 3000 mètres.

En premier lieu, on remarque la dissymétrie évidente à cause de laquelle le versant oriental de la cordillère précipite presque sur une bande subapennine en plusieurs points très étroite, si on la compare à d'autres sections de la péninsule italienne, donnant ainsi lieu non seulement à une brusque transition géologique mais aussi morphologique. En effet, on passe des puissants blocs calcaires aux terrains arénacés, marneux et argileux plus récents, dont le caractère témoigne une activité tectonique intense. La couverture des sables cimentés, qui est démantelée et réduite à des plaques isolées dans la région "aprutina", paraît au contraire mieux conservée au Sud, dans la zone "frentana", où elle forme exactement un tableau, traversé par un petit réseau fluvial.

Les bords des cours d'eau sont couverts de restes de végétation spontanée. Beaucoup de ces rivières sont à régime torrentiel et quelques-unes d'entre elles à cause de leur force érosive provoquent la formation de vallées caractérisées par une grande asymétrie.

Le facteur hydrographique est déterminant, car il donne lieu à une morphologie très fragmentaire, caractérisée par de nombreuses surfaces en mauvais état (ravinelements, éboulements).

Quelques exemples de phénomènes érosifs, sous forme de ravinelements, caractérisent bien des zones du territoire de collines. On le trouve dans la région de Chieti et de Teramo.

Les vallées de quelques fleuves qui poussent leurs bassins supérieurs à l'intérieur de la montagne calcaire (Vomano, Aterno-Pescara, Sangro) ne parviennent que rarement à exercer une fonction régionale et unificatrice. D'ailleurs les eaux rendues par les blocs karstiques, à travers de riches sources de contact, font naître des rivières courtes mais aux débits pas négligeables (même si ces débits sont sujets à des variations sensibles), et précieux pour l'irrigation des terres, mais responsables toutefois d'un découpage marqué du territoire.

La présence de grès, conglomérats, argiles et dépôts alluvionaux alimente une remarquable activité extractive et, en quelques cas, elle a favorisé la localisation d'installations de transformation de ces matériaux pour la production de structures en briques, ciments et produits manufacturés de toutes sortes. On trouve quelques exemples d'habitations en argile crue pétrie avec de la paille et appelées "pinciaie". Aujourd'hui on ne bâtit plus de "pinciaie" et celles qui restent sont dans un état d'abandon total, car à côté de ces constructions "primitives", se dresse une construction moderne et plus rationnelle, signe de l'évolution sociale et économique répandue dans toute la région des collines de l'Abruzzo.

La bande des collines de l'Abruzzo vit une phase de transition démographique et économique, car elle est caractérisée, surtout au Nord, par des centres sur les sommets des collines et par une installation disséminée assez appréciable. Après une longue période de dépeuplement, qui a atteint son apogée dans les années 60, cette bande de collines fait aujourd'hui partie de zones urbaines - et métropolitaines - émergentes, dont les pôles côtiers, maintenant bondés, décentralisent les résidences et localisations industrielles dans l'hinterland immédiat.

Exemples d'installations répandues et typiques d'une économie agricole intensive, bien que caractérisée par un morcellement marqué de la propriété foncière.

Typologie des centres habités. Partant d'une construction de type spontané, adaptée au milieu morphologique, qui tient compte de certains aspects de défense et de sécurité, on est arrivé récemment à une planification qui suit les règlements de la construction en fonction d'un développement urbain rationnel. Les centres habités au sommet d'une colline et en pente se sont développés le long d'axes routiers, de carrefours de routes, de gares et de péages de l'autoroute. Bien souvent, on remarque les différences de plan existant entre les vieux quartiers ou "centri storici" et les nouveaux quartiers d'une même ville.

Ainsi, le paysage classique de la polyculture familiale se transforme en paysage urbanisé, où la spécialisation culturelle marque une augmentation des revenus agricoles, tandis que le renouveau du bâtiment ne témoigne pas seulement l'apport positif du retour des immigrés, mais surtout l'intégration productive et tertiaire, soutenue par une maille assez serrée de petites villes, riches en traditions, qui réclament un nouveau rôle actif dans le guide des communautés locales et dans le processus global et régionaliste. Il suffit de rappeler que la région de collines donnant sur la mer Adriatique est la plus grande productrice de raisins de l'Abruzzo, et l'une des plus importantes d'Italie. Parmi les cultures d'arbres, la vigne s'ajoute et succède à l'olivier, surtout sur les versants les mieux exposés et abrités.

On remplace de plus en plus les cultures mixtes par les cultures spécialisées. Le paysage agricole des collines littorales de l'Abruzzo central et méridional est caractérisé par la culture forcée du raisin de table dans les serres non-chauffées, qui permettent de hâter la maturation de près de deux mois.

Mais un obstacle s'oppose au développement de la bande de collines: c'est justement son caractère fragmentaire accentué, qui, favorise d'une part l'individualité et l'autonomie des "localismi" (ainsi nommés-économies locales émergentes), de l'autre finit par limiter les capacités d'utilisation des ressources et la mobilité même de la population.

Aujourd'hui c'est le lac artificiel, qui constitue un élément nouveau dans le paysage de la colline abruzzaise. On en a réalisé presque mille, en barrant des fossés ou de petites vallées par des barrages en terre battue.

Le but, malheureusement pas toujours atteint, était celui de donner de l'essor à certaines productions agricoles comme le maïs et les légumes.

Parmi les composantes humaines les plus évidentes dans le paysage des collines de l'Abruzzo adriatique, le réseau routier et les autoroutes jouent un rôle particulièrement significatif. Ce sont des travaux remarquables et hardis qui permettent de surmonter les inconvénients d'une morphologie diverse et d'une géologie complexe.

Cependant après la phase nécessaire d'augmentation de la puissance des axes de communication littoraux et transversaux, en direction du versant de la mer thyrhéniennne, on attend maintenant la réalisation d'une directrice, appelée justement "transcollinaire", qui, doublant celle de la côte, pourra ultérieurement consolider le système régional de l'Abruzzo maritime.

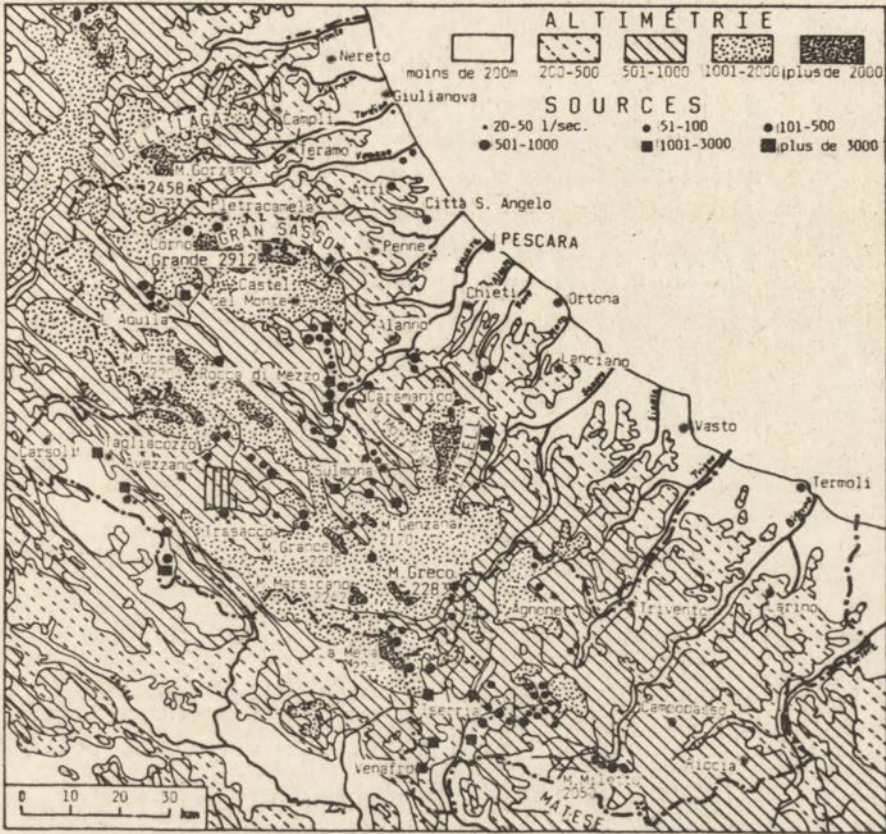


Fig. 1. La carte hydrographique.

M. Fondi, Abruzzo e Molise, Coll. "Le Regioni d'Italia",
UTET, Torino, 1970.

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L'URBANISATION TOURISTIQUE DES ESPACES RURAUX EN SICILE

1. Les relations agriculture-tourisme en Sicile

Aujourd'hui en Sicile agriculture et tourisme sont étroitement liés dans la mesure où l'espace touristique s'est superposé à l'espace rural surtout dans les littoraux; en effet il y a eu là une recolonisation des zones rurales par le tourisme.

Le déclin de l'agriculture et le manque d'industrialisation de la campagne ont imposé la recherche de revenus complémentaires pour freiner, même de manière limitée, l'exode et l'urbanisme, de plus en plus massifs, alors que le tourisme est à la recherche de nouveaux espaces, envisagés dans les grandes et moyennes propriétés foncières, surtout là où existait un conflit entre capital et travail¹. Les capitaux, en effet, sont urbains et proviennent des professions libérales, tandis que la main d'oeuvre est locale.

La zone agricole littorale s'est rétréci car beaucoup de propriétés foncières ont été lotisées et transformées en centres hôteliers, résidentiels, en villages de vacances, qui sont une mauvaise copie, à échelle différente des agglomérations urbaines, mais sans être dotées de services du même niveau, étant pourtant contraintes à rentrer dans l'aire de rayonnement de la ville la plus proche. Par conséquent, un mur de béton longe le front de mer, tandis que la privatisation de la plage, ainsi que de la mer par les bateaux de plaisance

¹ C. Ciaccio, Sviluppo turistico ed agricoltura in Sicilia, "Annali Facoltà Economia e Commercio", Messina, 1, 1979, 1-24.

s'accroît, car la lisière cotière, qui, en grande partie, est domaine de l'État, est souvent close d'une grille et munie d'une route privée, par les hôteliers et les propriétaires de résidences secondaires ou de clubs. C'est surtout le cas des terrains situés à proximité des voies rapides et des embranchements d'autoroutes, où se concentre la plupart de l'urbanisation.

Dans les campagnes côtières et insulaires s'est implanté un chapelet d'ensembles de loisirs, hameaux de résidences secondaires avec des services naïfs, soit de véritables villes saisonnières, sans égouts ni épurateurs et avec de faibles ressources en eau, qui ne fonctionnent que pendant quelques mois de l'année, puisque les touristes sont concentrées entre mai et septembre, les propriétaires ouvrant difficilement leurs résidences secondaires pour les week-ends ou pour Pâques et Noël. Jusqu'aux années '50, ces zones étaient exploitées par l'agriculture (vignobles, cultures maraîchères, oliviers, agrumes) et, parfois, faisaient l'objet d'une faible urbanisation touristique d'haut standing (villas, Grand Hotels, etc.). La crise de toute l'agriculture, à la fin des années '50, et la crise particulière de l'agrumiculture, dans les années '70, suivies par un important exode agricole et une forte émigration, ont entraîné la recherche de nouvelles voies du développement socio-économique.

Dans les années '60, pour quelques zones (Milazzo, Siracusa, Gela), on a choisi l'industrialisation lourde, qui toutefois a été un échec², tandis que, dans les années '70, toute l'île a opté pour le tourisme, en particulier le tourisme résidentiel. Le bien-être plus répandu, une plus grande durée du temps libre, le besoin de se défendre contre l'inflation, qui ont poussé les insulaires à envisager dans la résidence secondaire le meilleur bien-refuge, alors que la stagnation de l'industrie du bâtiment, causée dans les agglomérations urbaines par des lois restrictives, ont amené les entrepreneurs à investir dans les résidences secondaires au bord de la mer, là où la demande était la plus importante. L'effet-ville a ainsi affecté les hameaux agricoles et de pêche, favorisé même par la construction des autoroutes (Messine-Catane; Messine-Palermo; Palermo-Mazara), empruntant tous les littoraux: celles-ci, avec leurs nombreux embranchements, ont donné la possibilité aux habitants de gagner, en quelques instants, des espaces littoraux plus agréables que ceux à proximité des villes, où jadis allaient s'implanter les résidences secondaires d'élite.

² C. Ciaccio, Il recente sviluppo industriale e turistico della Sicilia, "Annali Facoltà Economia e Commercio", Messina, 1, 1975, 205-257.

2. L'organisation touristique

Pendant les années '70, c'est à dire lorsqu'on a réaménagé le réseau routier et subi la crise de l'agrumiculture, le tourisme sicilien a changé: l'île, jadis à dominante touristique, italienne et étrangère, est devenue île à dominante vacancière de masse, comme en témoigne l'essor de la résidence secondaire et de camping-caravaning ainsi que des villages-vacances et des hôtels club par rapport à une lente croissance de l'hôtellerie d'un haut standing.

Par conséquent, on a eu affaire à un processus de transformation rapide des exploitations en lotissements; malheureusement l'agriculture affectée par l'urbanisation a été une agriculture riche, dans laquelle, après la deuxième guerre mondiale, on avait fait des importants investissements public et privés; il s'agit en effet de la campagne ouverte, desservie par les voies rapides et proche des grandes agglomérations qui possèdent des capitaux et des entrepreneurs, tandis que le développement touristique a négligé la campagne profonde, repliée sur elle-même. Dans les littoraux se sont installés trois types de résidences secondaires:

- 1) la résidence secondaire des années '60, bâtie artisanalement par des promoteurs locaux sous forme de petites villas individuelles avec de larges espaces verts;
- 2) la résidence secondaire du début des années '70 bâtie par des sociétés immobilières régionales, avec des villas plurifamiliales ou de petits condominiums;
- 3) la résidence secondaire de la fin des années '70, bâtie par des sociétés immobilières extrarégionales, avec de grands condominiums et le système de la multipropriété.

Les deux dernières sont souvent abusives et négligent la législation du bâtiment.

Le paysage insulaire a donc changé: on a passé du paysage agraire avec d'anciennes maisons rurales parsemées, réaménagées par les rapatriés ou par la population permanente pour soi-même dans le but de location touristique, à un paysage à modèle urbain d'abord ponctuel, puis linéaire.

Par la résidence secondaire, on a obtenu une soudure entre trois types d'habitat touristique: la banlieue des grandes villes, les stations touristiques balnéaires traditionnelles, les nouvelles stations touristiques intégrées, créé ex-nihilo.

Tous les trois types d'urbanisation se sont implantés, surtout le premier et le dernier, dans des périodes différentes, dans des espaces ruraux, voire dans des espaces agricoles.

Comme on a dit, le découpage du nouvel espace touristique, a affecté seulement les littoraux, ayant en Sicile peu de poids, soit le tourisme montagnard soit le tourisme rural. C'est à dire on retrouve dans le tourisme la même dichotomie socio-économique qu'entre la côte et l'intérieur de l'île.

Plusieurs raisons sont à l'origine de l'affectation touristique des littoraux:

- 1) le nombre important d'exploitations à conflit entre capital et travail;
- 2) le changement du modèle du tourisme: selon les enquêtes de l'ISTAT, aujourd'hui 71,3% de la clientèle italienne passe ses vacances à la mer;
- 3) l'accessibilité, qui est un des éléments des plus importants de la structuration de l'espace touristique;
- 4) l'économie plus différenciée et tertiarisée et donc la superposition des zones développées du point de vue touristique aux zones dynamiques du point de vue économique;
- 5) la société plus ouverte aux changements et aux innovations.

L'espace agricole, a donc été réaménagé par le développement touristique, surtout après le début des années '70. L'urbanisation touristique a envahi, directement et par les espaces de réserve, des zones agricoles florissantes, soudant entre elles agglomérations urbaines de différente envergure.

La convergence de l'offre et de la demande a entraîné un phénomène. L'offre a été favorisée par la présence d'un riche patrimoine en maisons rurales abandonnées à la suite de l'exode ainsi que de nombreux propriétaires fonciers, grands et moyens, qui ont envisagé dans la vente de leur terrains à des fins touristiques le débouché le plus rentable de l'agriculture en crise ou dans leurs transformations en promoteurs touristiques ou en entrepreneurs de bâtiment la possibilité de meilleurs investissements.

La demande, à son tour, a été incitée soit par les entrepreneurs de bâtiment à la recherche de nouveaux marchés, soit par les nouvelles couches sociales qui pratiquent le tourisme de proximité, orientées vers la mer et ne dépassant presque jamais les limites de leur province pour l'achat ou la location d'une résidence secondaire.

Pourtant, faute d'une planification organique, les littoraux sont affectés par une remarquable hétérogénéité dans l'usage touristique de l'espace: on

bâtit des hôtels et des villages de vacances de grande envergure, on transforme en condominiums et résidences secondaires d'anciennes implantations pour le traitement du thon, d'autres ruines d'archéologie industrielle, des cabanes pour abriter les bateaux, des maisons rurales ou de pêcheurs; on détruit ou abandonne d'anciennes villas artistiques pour faire place à des lotissements.

Ces transformations du paysage sont mis en oeuvre par des particuliers, des promoteurs privés ainsi que des sociétés immobilières. Par conséquent, l'homogénéité architectonique et urbanistique caractérise les centres littoraux, où conurbations et mégalofoles touristiques ont remplacé les cultures.

On a vu se développer un nouveau réseau urbain: les vieilles agglomérations se sont développées et ont été transformées soit par la création de nouveaux quartiers résidentiels touristiques, de loisirs, commerciaux, de services, soit par le réaménagement des anciennes maisons paysannes, étant donnée que même les goûts de la population permanente ont changé, ainsi que de la voirie intérieure, qui doit satisfaire les exigences du trafic individuel et collectif différent; tandis que de nouvelles "villes saisonnières" sont nées ex-nihilo ou comme apophyse des centres collinaires et côtiers dans les propriétés foncières où l'ancienne villa du patron a été détruite ou joue le rôle de point de rencontre des lotissements³.

Même les plans des agglomérations ont changé; jadis l'habitat se développait avec lenteur, car on avait l'habitude de bâtir les maisons adossées les unes contre les autres avec de petites ruelles, l'expansion se faisait en profondeur, la population était en décroissance; tandis qu'après l'essor du tourisme les maisons sont plus distantes les unes des autres, surtout en plein-air, la voirie est plus importante et équipée de parkings, l'expansion se produit en longueur ou vers la mer, car les touristes et les vacanciers veulent avoir "le pied dans l'eau", la population saisonnière est nombreuse.

Alors que les agglomérations sont assez éloignées de la mer, souvent perchées, les quartiers touristiques ont entraîné une expansion en longueur du plan. Même la place, élément typique des agglomérations siciliennes et centre de la vie sociale, a été réaménagée et pourvue des services nécessaires aux vacanciers et aux touristes; par contre, au centre des "villes saisonnières"

³ C. Ciaccio, Il turismo ed il nuovo assetto delle fasce costiere siciliane, "Ville suburbane, residenze di campagne e territorio", Palermo, 1986, 443-449.

on trouve un centre des loisirs (bars, night-clubs, restaurants, boutiques, guichets de banque ou de poste, etc.).

A côté des agglomérations transformées par le tourisme au désavantage de l'agriculture, on trouve les centres touristiques créés ex-nihilo de façon spontanée, et non à la suite d'un aménagement, proches des grandes villes ou des infrastructures de transport (ports, aéroports, autoroutes, etc.). Il s'agit de deux types:

- 1) formés uniquement de résidences secondaires, destinés au tourisme de proximité, qui s'appuyant sur les agglomérations les plus proches;
- 2) formés de résidences secondaires, et de structures hôtelières et extrahôtelières, de services sportifs, de loisirs, commerciaux, et de ports adaptés aux plaisanciers, et destinés au tourisme italien et étranger.

La deuxième typologie est moins répandue, car les Services Publics et les capitaux privés n'ont su ou voulu structurer l'espace touristique pour le tourisme de masse étranger⁴, c'est à dire un espace à dominante hôtelière, même si aujourd'hui l'offre et la demande de résidences secondaires et de chambres chez l'habitant se répandent aussi dans le tourisme étranger.

L'urbanisation des littoraux insulaires, est donc remarquable car la résidence secondaire a de l'emprise spatiale, même par rapport au nombre de la clientèle, plus importante que l'hôtellerie et l'extrahôtellerie.

Sans doute un espace plus structuré et plus dynamique s'est superposé à l'espace agricole plus statique.

A la place des cultures et de la garrigue, on a bâti un réseau hôtelier, extrahôtelier et de résidences secondaires très important: en 1981, on avait 58.035 lits d'hôtel (32.182 en 1971), 35.712 lits extrahôtelières (30.003 en 1971), 818.161 chambres en résidences secondaires (367.479 en 1971).

Ce patrimoine est sous-utilisé, surtout l'extrahôtellerie et les résidences secondaires, car le tourisme littoral est un phénomène très saisonnier. D'ailleurs le tourisme de congrès affecte seulement les hôtels de haut niveau.

Il y a trois exemples remarquables, en Sicile, de transformation du sol agricole en agglomérations touristiques: deux en province de Messine (la station touristique de Naxos et le "marina" de Portorosa), un en province de Pa-

⁴ En 1981 les arrivées sont de 2.161.916 personnes, dont 634.908 étrangers; les nuitées sont 8.225.429, dont 3.040.185 étrangers (I dati del turismo in Italia, Milano, CESDIT, 1985, voll. 2). Les arrivées et les nuitées en résidences secondaires ne sont pas comptabilisées.

lerme (Città del Mare); de grands vignobles ont disparu pour faire place à l'urbanisation de Portorosa et de Citta del Mare, alors qu'une vaste plantation d'agrumes a été détruite pour bâtir le centre touristique de Naxos.

Naxos, qui s'est développé à côté des ruines de l'ancienne colonie grecque, à l'une des sorties de l'autoroute de Messine-Catane, est une ville saisonnière créée ex-nihilo, au début des années '70, à l'aide de capitaux de la ville de Catane, pour le tourisme de masse, étranger, national et de proximité. Pendant dix ans, dans le cadre de la loi régionale de 1973 pour le développement touristique de la Sicile, on a créé plus de 5 000 lits hôteliers et extrahôteliers et environ 12.000 chambres en résidences secondaires, ainsi qu'un large ensemble de loisirs (restaurants, bars, discothèques, piscines, courts de tennis, auditorium, établissement de bains, etc.) et un réseau commercial très spécialisé principalement dans le secteur lié aux sports nautiques. Les hôtels, dont beaucoup de haut niveau, et les pensions sont tous à 3 étoiles, comme impose la loi, tandis que les résidences secondaires sont dépourvues de permis de construire.

Naxos, qui est née comme une structure complémentaire de l'ancienne station touristique réputée de Taormine, qui avait un littoral très réduit et ne disposait pas d'un port à restructurer pour les plaisanciers, jouissant de belles plages, d'un port de pêche et d'une large plaine, joue aujourd'hui le rôle de concurrente.

Naxos est un exemple sicilien de tourisme, perçu comme débouché rentable de l'agrumiculture en crise, s'étant installé dans une vaste plantation d'agrumes du Baron Carcaci, qui, au début des années '70 l'a lotisé et vendu à différents promoteurs, qui ont bénéficié des interventions de la Région. Les promoteurs avaient tout de suite compris que la morphologie, la position de la propriété au milieu des deux grandes villes de Messine et de Catane et la desserte par autoroute pouvaient entraîner une grande affaire. En effet, Naxos s'est répandue en tache d'huile, avec l'urbanisation et la restructuration de la voirie, et la clientèle n'a pas manqué. Il s'agit donc, comme partout en Sicile, d'une croissance organique, et non pas de la réussite d'une planification.

Autre exemple d'emprise spatiale du tourisme en espace agricole, c'est Portorosa, un "marina" privé, né, à la moitié des années '80, près d'une des sorties de l'autoroute de Messine-Palermo. En effet, dans la région il y a une grande demande de ports de plaisance, mais très peu d'offre et toujours dans

des ports de pêche. Pourtant des promoteurs de Messine ont acheté une grande propriété foncière au bord de la mer et ont créé une remarquable urbanisation, en creusant même un canal de 60.000 mg.

Portorosa couvre une surface de 677.795 m², avec 52 bungalows, 11 condominiums, 18 villas, un hôtel à 400 lits, un équipement sportif et de loisirs, 700 mouillages, dont 389 dans le canal. L'ancienne villa du patron a été gardée et joue le rôle de bureau pour la société immobilière⁵.

Citta del Mare est un grand village de vacances, à 40 km à l'ouest de Palerme, près d'une des sorties de l'autoroute de Palerme-Mazara, disposant de 21 bâtiments avec 820 chambres, une place, la poste, des magasins, des boutiques, des théâtres, des discothèques, des restaurants, des équipements sportifs, des écoles maternelles. Créé en 1971, par la Ligue italienne des coopératives, pour donner aux ouvriers la possibilité de jouir de vacances agréables, il est devenu un foyer de tourisme de masse et étranger dans les années '70, italien dans les années '80, à cause des prix élevés⁶.

À côté de ces trois monstres, on a un chapelet de nombreux villages de vacance, d'hôtels club, de lotissements, qui sont des apophyses d'anciennes et de nouvelles stations touristiques ainsi que d'agglomérations urbaines ou rurales. Parmi les villages de vacances et les hôtels club, 22 ont plus de 200 chambres et 7 - entre 500 et 850 chambres; beaucoup de structures ont été mises en oeuvre par des promoteurs d'Italie du Nord.

3. En conclusion: en Sicile, à la place des zones agricoles s'est implanté, à petite ou à grande échelle, la trilogie urbaine (trafic, bruit, béton), car les littoraux, à partir des années '70, sont devenus le but de véritables migrations de loisirs.

Des conurbations se sont créées entre villes de travail et villes de loisirs qui n'ont pas récupéré l'habitat rural insulaire.

Aujourd'hui les structures touristiques sont l'élément le plus remarquable des côtes, tandis que jusqu'aux années '50 prédominaient les cultures et la végétation.

⁵ C. Polto, *Usa del territorio e tutela dell'ambiente nella fascia costiera tirrenica messinese*, "Archivio Storico Messinese", sous presse.

⁶ R. Monheim, *Tourismo in Sicilia. Sviluppo di centri tradizionali e nuovi*, sous presse.

Faute de planification et sous la pression d'intérêts spéculatifs le paysage côtier a été bien endommagé, car le processus de réaménagement ne découle pas d'une amélioration des structures agraires, mais d'un brusque changement du mode de vie.

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URBANISATION ET STRUCTURE FONCTIONNELLE DES ESPACES RURAUX EN POLOGNE

Ce présent exposé a été élaboré sur base des résultats des recherches portant sur la structure spatiale et la classification fonctionnelle des espaces ruraux et réalisées à l'Institut de Géographie et d'Aménagement du Territoire de l'Académie Polonaise des Sciences.

Ces travaux avaient pour but l'élaboration de critères et de méthodes de classification fonctionnelle des espaces ruraux considérés comme multifonctionnels, en admettant que les résultats obtenus seraient comparables dans l'espace et dans le temps. Leur but cognitif consistait à connaître la structure spatiale des espaces ruraux polonais du point de vue des fonctions de base qui s'y développent.

La distinction et la délimitation des espaces ruraux sont assez difficiles. Pendant des siècles, la plupart des espaces ruraux se sont caractérisés par la prédominance de l'agriculture. Celle-ci y coexistait avec d'autres formes d'activités à répartition spatiale (non pas ponctuelle), telles la sylviculture, la pêche etc. ainsi qu'avec l'habitat s'y rapportant. Les autres fonctions consistaient pour la plupart en l'exploitation des réserves minérales, en une simple transformation des matières premières, ou encore en un artisanat desservant la campagne. Par contre, une activité productive et des services de rang supérieur, tendant à une répartition ponctuelle et à la concentration, a favorisé le développement des villes. Les rapports économiques entre la ville et la campagne étaient basés sur un échange réciproque de produits et de services (Kostrowicki 1976). Ce système simple, se manifestant dans l'espace par un partage dichotomique en campagne et ville, a été considérablement ébranlé

dans plusieurs pays lors de la révolution industrielle, alors que la plupart des territoires de la Pologne a connues transformations seulement au cours des quarante dernières années.

Le développement des processus d'industrialisation et d'urbanisation influe sur l'accroissement des interdépendances entre les formes biogénétiques et technogénétiques d'utilisation des réserves naturelles (Kostrowicki 1978), ce qui se reflète dans la structure fonctionnelle des espaces. À côté des espaces où dominent nettement, les fonctions "rurales" ou "urbaines" traditionnellement distinguées, se forment des espaces aux fonctions mixtes ou transitoires, résultant du développement de fonctions technoproductives (de l'industrie, de la construction urbaine etc.), dans les espaces ruraux. Cela rend difficile la délimitation des espaces ruraux et la division dichotomique entre campagne et ville perd de sa valeur. C'est pourquoi, dans les recherches spatiales, il est nécessaire d'adopter un principe qui définisse les espaces ruraux. Dans les travaux réalisés, on considère comme tels les territoires situés entre les villes délimitées. Cela veut dire que dans les recherches détaillées, on a adopté pour unité de base la commune rurale et urbaine-rurale (mais dans le cas de cette dernière, la ville chef-lieu de commune a été examinée séparément de celle-ci) et dans les recherches à macro-échelle - ce sont les espaces ruraux des différentes voïvodies. Ces espaces ruraux peuvent concerner des territoires fortement urbanisés, de même que dans les limites des villes on peut trouver des territoires propres à la campagne. Ce ci est prouvé entre autres par le fait qu'environ 50% de la surface des villes polonaises est rouée à l'agriculture et 20% aux forêts. Les espaces ruraux, dans leurs limites administratives, occupent 94% de la surface de la Pologne; cette part oscille entre 54% dans la voïvodie de Katowice et 74% dans celle de Varsovie, et plus de 98% dans les voïvodies d'Olsztyn et de Zamosć (Fig. 2). Ces territoires regroupent environ 2/5 de la population du pays (39,8% en 1985), sans compter près de 2 millions d'habitants dans de petites villes. La répartition spatiale de la part de la population rurale dans la population totale oscille entre moins de 10% dans la voïvodie de Łódź et environ 12% dans celles de Varsovie et de Katowice et plus de 70% dans les voïvodies de Siedlce et de Zamosć (Fig. 1).

Dans un premier temps, des recherches ont été effectuées à l'échelle des espaces ruraux des 49 voïvodies. Les travaux ont démontré une très forte différenciation de la structure fonctionnelle (Fig. 4) et ont servi de base pour

le choix des territoires pour les recherches à l'échelle des communes. Ces recherches ont porté sur 9 voïvodies¹ (Stola 1987) occupant au total 1/5 des espaces ruraux de la Pologne et 17% (348) des communes. Elles concernent les territoires qui diffèrent par leur structure fonctionnelle, ainsi que leurs rapports bilatéraux avec les villes.

Le présent article a pour objet de caractériser l'influence des processus d'urbanisation sur la formation spatiale de la structure fonctionnelle des espaces ruraux de la Pologne.

La difficulté de déterminer de manière univoque les rapports entre l'urbanisation et la structure fonctionnelle des espaces ruraux résulte tant de leur complexité que des difficultés à cerner l'influence des processus d'urbanisation de ceux de la modernisation de la structure fonctionnelle et du développement des différentes fonctions. Il arrive en effet que l'on identifie la modernisation des conditions de vie et de travail de la population rurale avec l'urbanisation de la campagne. Par exemple, certains investissements dans le domaine de l'infrastructure technique (réseaux de distribution d'eau, d'assainissement, téléphonique) ou de l'équipement des ménages (en réfrigérateurs, postes de télévision etc.) sont repris comme investissements d'urbanisation bien qu'ils ne transforment pas les espaces ruraux en espaces urbains mais contribuent uniquement à améliorer les conditions de vie et à faciliter l'exercice d'activités économiques à la campagne.

La structure actuelle des espaces ruraux de la Pologne résulte de la superposition des effets des transformations socio-économiques et politiques advenues après la II^e Guerre mondiale sur la situation à la campagne à cette époque.

Excepté les territoires du sud-ouest, transformés sous l'influence du développement de l'industrie (basée principalement sur l'exploitation du charbon et des minerais) ou situés dans la zone d'influence de grandes villes, (Varsovie, Łódź) les autres territoires se caractérisaient par une prédominance de fonctions bioproductives (agricoles, forestières) d'un niveau de développement différencié.

¹ L'étude portait respectivement sur les voïvodies suivantes: la voïvodie de Varsovie, Kielce, Suwałki, Leszno, Wałbrzych et Wrocław, Nowy Sącz, Cracovie (élaborée par I. Kwiecień), la voïvodie de Koszalin (élaborée par M. Jasiulewicz).

Par contre, s'étaient manifestées de fortes disproportions au sein de la structure sociale et du niveau de développement de l'aménagement spatial. Cela s'est manifesté avant tout par la différenciation des couches sociales à la campagne, de la densité de la population (Fig. 3) - particulièrement de la population agricole, ainsi que du degré de développement de la fonction fondamentale de ces espaces ruraux - de l'agriculture et dans le domaine de l'infrastructure sociale et technique. La plupart de ces disproportions étaient dues au fait que, jusqu'en 1918, les territoires polonais avaient appartenu à des pays de différents niveaux de développement socio-économique. Mais elles résultaient aussi des destructions de guerre et des modifications du tracé des frontières et du territoire de la Pologne en 1945.

Après la II^e Guerre mondiale, parmi différents facteurs et processus (réforme agraire, création du secteur socialisé dans l'agriculture, migrations de la population dues aux modifications des frontières de l'Etat etc.), l'influence décisive sur le développement de la structure fonctionnelle a été exercée par les processus d'industrialisation et d'urbanisation.

Le modèle d'industrialisation réalisé dans les années 1950-1980 a été le facteur principal façonnant le fonctionnement de l'économie spatiale. Ce modèle a été extensif, exploitant les réserves, aux dépens du développement de l'infrastructure technique et sociale, ainsi que de l'agriculture et de la sylviculture, donc surtout aux dépens des espaces ruraux (Kukliński 1984). De plus, conjointement avec un processus de concentration, ce modèle a retardé et déformé le développement des processus d'urbanisation (investissement infra-structurel insuffisant, stagnation des petites villes), ce qui a influé indirectement sur la formation de la structure fonctionnelle des espaces ruraux. Sous l'influence de l'industrialisation et de l'urbanisation, se sont réalisées avec une intensité variable, des transformations des espaces ruraux, que ce soit en ce qui concerne leur étendue, leur peuplement (part de la population rurale) ou la structure de leur aménagement spatial. Cela se reflète dans les transformations de l'utilisation du sol, dans la structure socio-professionnelle et démographique de la population, ses niveau et conditions de vie.

Le développement des villes s'est donc réalisé aux dépens des moyens de production de la campagne: de la terre (réduction de la SAU, pollution des sols etc.), des hommes (migrations définitives et pendulaires) et du capital (différences dans les investissements du territoire, dans le niveau de vie de la population).

Si l'on considère l'industrialisation comme l'un des symptômes de l'urbanisation, on peut constater qu'elle a également influé sur les transformations internes des espaces ruraux. Tout d'abord, ceux-ci se sont transformés en espaces à fonctions multiples. A côté de l'agriculture et de la sylviculture se sont développées des fonctions caractéristiques des villes (industrie, construction urbaine) ou relevant des services à la population urbaine (fonctions de récréation), ainsi qu'à la population qui n'est liée aux espaces ruraux que par son lieu de résidence et non pas par celui de travail (fonctions résidentielles, dortoirs). En même temps, sous l'influence de l'urbanisation, notamment sur les territoires situés dans la zone d'influence directe des agglomérations urbaines, se sont opérées des transformations des orientations et du type de fonctions, p.ex. développement de l'agriculture suburbaine destinée à l'approvisionnement direct de la population urbaine, des jardins pour la population non-agricole, ou encore de formes spécifiques de fonctions récréatives (repos de week-end, de courte durée) liées souvent à la construction de résidences secondaires. En outre, les processus d'urbanisation et notamment ceux d'industrialisation ont été la cause de transformations néfastes du milieu naturel rural (déficit et pollution des eaux, pollution de l'air et des sols) avec toutes les conséquences négatives de cet état de choses (p.ex. dégradation de l'état de santé de la population, pénurie de l'eau pour la population), ainsi que dans le domaine culturel (p.ex. dans le caractère de la construction).

Les recherches réalisées dans le domaine de la structure spatiale des espaces ruraux ont principalement porté sur la structure fonctionnelle. Elles ont démontré que les fonctions basiques des espaces ruraux de la Pologne, destinées à satisfaire les besoins externes, étaient les suivantes: parmi les fonctions bioproductives - l'agriculture commerciale et la sylviculture, parmi les technoproductives - l'industrie (et la construction) et parmi les services - les fonctions touristiques et résidentielles².

Par leur structure spatiale, les espaces ruraux sont fortement différenciés. Cela résulte plus d'un développement socio-économique autrefois plus différencié ainsi que des processus d'urbanisation advenus après la II^e Guerre

² D'autres fonctions de base, comme p.ex. l'enseignement postprimaire, la thérapeutique spécialisée, l'artisanat artistique n'apparaissent que très rarement dans les communes; elles sont plus fréquentes dans les villes - sièges de communes urbo-rurales.

mondiale, que d'une différenciation de la Pologne du point de vue des conditions naturelles. Pour la plupart ce sont des espaces à fonctions multiples, avec prédominance de fonctions productives (agriculture, sylviculture, industrie). Il est assez rare d'avoir des espaces "à fonction unique" dans le sens d'une prédominance notable d'une seule fonction; pour la plupart des cas c'est l'agriculture.

Les espaces ruraux du nord-ouest et du nord-est de la Pologne, excepté ceux situés dans la zone d'influence de grands centres urbains et industriels sont le plus souvent caractérisés par la prédominance des fonctions bioproductives (agriculture et sylviculture) et de touristiques (Stola 1982; Jasiulewicz 1983). Par contre, les régions des voïvodies centrales et méridionales, relativement fort urbanisées, sont caractérisées par une structure fonctionnelle plus complexe, où, outre les fonctions mentionnées, un rôle important est joué par les fonctions industrielles et de dortoirs.

Les territoires dont les fonctions sont particulièrement complexes sont ceux placés sous l'influence directe d'agglomérations urbaines et industrielles. Parmi elles, l'influence la plus forte est exercée par trois agglomérations rapprochées - celles de Haute-Silésie, de Cracovie et de Bielsko-Biała, ainsi que par l'agglomération de Varsovie. La structure fonctionnelle des espaces ruraux avoisinants diffère tellement des espaces ruraux des autres voïvodies, qu'ils ont été classés à part (Stola 1987). De plus, les recherches effectuées à l'échelle des communes ont démontré une forte influence des villes des Centres Industriels de Vieille Pologne et de Wałbrzych³ (Stola 1979, 1986) bien que les conséquences de cette influence soient différentes.

Les espaces ruraux de la voïvodie de Katowice, très fortement urbanisée (seulement 12% de population rurale), sont à compter parmi les plus transformés et menacés du point de vue écologique, en résultat de l'activité économique. Ils se caractérisent par une très forte densité de la population (132 personnes au km²) (Fig. 3) et une part très élevée de la population non-agricole (83%). Celle-ci travaille dans l'industrie locale, notamment dans l'industrie extractive et la métallurgie, ou effectue des migrations pendulaires vers les villes voisines. Autrement dit, à part les fonctions industrielles,

³ Si les études détaillées portaient sur toutes les communes de la Pologne, elles confirmeraient probablement l'influence d'autres centres industriels.

la fonction résidentielle est aussi fortement développée. La superficie agricole utilisée est aux 3/4 constituée de propriétés privées, principalement sous forme de petites exploitations ou de "jardins d'ouvriers" (moins de 0,5 ha) pour la population non-agricole. La production agricole est destinée en majeure partie à l'autoconsommation et aux marchés locaux. En raison d'une pollution importante du milieu naturel, seulement la moitié de la SAU peut être consacrée à la production de denrées alimentaires et sur près de 1/5 de cette SAU on devrait exclure la culture des plantes destinées à la consommation (Frąckiewicz 1984). Ainsi, sur les territoires situés dans la zone d'action néfaste de l'industrie, outre les réductions directes de la SAU au profit de la construction urbaine et industrielle, le problème de la diminution de terrains cultivables en raison de la pollution de l'environnement ne fait qu'augmenter.

Les espaces ruraux de la voïvodie de Katowice ont pour fonction secondaire celle de récréation, principalement de week-end. Elle se manifeste avant tout sur les terrains boisés. Malheureusement, la majorité de ceux-ci se trouvent dans les zones d'action dommageable de l'industrie.

Les espaces ruraux de la voïvodie de Bielsko-Biała, nettement moins urbanisée (Fig. 2), restent principalement sous l'influence directe de l'agglomération de Bielsko-Biała. A part les fonctions industrielles, dans la structure fonctionnelle de ces espaces, l'on remarque aussi les fonctions touristiques, résidentielles ainsi qu'agricoles. Ces espaces possèdent la plus forte densité de population en Pologne (139 personnes/km², la moyenne étant de 50,3 personnes/km² en 1982) et une part très élevée de la population non-agricole (80%) (Fig. 5,6). Cette population travaille dans l'industrie, la construction, les transports et les services, effectuant des migrations pendulaires vers les villes voisines. Les fonctions touristiques, fort développées, sont également source d'emploi, notamment dans le Beskid Śląski et Żywiecki; il en est de même pour la sylviculture. Ces espaces, caractérisés par une part relativement faible de la SAU (50%), appartiennent pour la plupart à des exploitations individuelles très morcelées (1,9 ha en moyenne) dont les exploitants sont le plus souvent des actifs bi-professionnels. Cette agriculture, très consommatrice en travail humain par hectare de SAU, est en grande partie destinée à l'auto-subsistance.

Par l'aspect de leur agriculture, ces espaces ressemblent à ceux de la voïvodie de Nowy Sącz bien que ces derniers soient caractérisés par une

moindre densité de la population (81 personnes au km²) et une part plus importante de la population agricole (45%). A part les territoires où prédominent les fonctions agricoles, à degré de commercialisation faible, ou moyen comme c'est le cas dans les zones d'arboriculture fruitière des Carpathes, prédominent surtout dans les Beskidy et dans le Podhale, des communes ayant des fonctions touristiques avec une part d'agriculture ou/et de sylviculture. La majorité de la population non-agricole habite avec l'exploitant et travaille dans l'exploitation agricole donnée en plus de la profession principale. Le tourisme rural y est répandu. (On observe ce même phénomène dans la zone littorale de Pologne). Ainsi la population locale loue des chambres et assure le service aux touristes tout en travaillant dans d'autres professions. De plus, sur les territoires qui ne sont pas trop distants des centres urbo-industriels on a vu se développer la construction de résidences secondaires et le repos de week-end qui s'y rapporte.

Dans les régions du sud-est de la Pologne, la structure spatiale des espaces ruraux diffère de ceux décrits ci-dessus avant tout par une densité de la population moins importante (dans les Bieszczady, inférieure à 25-30 personnes/km²) et par une part moins importante de la SAU (et ce, au bénéfice de forêts) dépendant pour la plupart des exploitations d'Etat. Malgré un milieu naturel attrayant, les fonctions touristiques y sont relativement peu développées. Cela résulte entre autres d'un faible niveau de développement de l'infrastructure technique, donc de l'accessibilité par les moyens de transport, ainsi que d'un faible peuplement.

Le morcellement historique de la structure agraire et le surpeuplement agricole des régions du sud-est de la Pologne ainsi que le développement des processus d'industrialisation au cours des quarante dernières années, joints à un faible développement de la construction de l'habitat dans les villes ont créé des conditions favorables pour que la population rurale puisse exercer un travail ailleurs que dans l'agriculture sans changer de lieu de résidence. C'est la cause de l'augmentation du nombre des actifs double-professionnels ainsi que des migrations pendulaires de la population rurale.

Outre les transformations de la structure socio-professionnelle de la population, il s'est produit des changements du caractère de la construction rurale, du mode de vie de la population, etc. On a vu se développer le processus de la semiurbanisation des espaces ruraux.

Les processus en question se sont également manifestés dans d'autres régions, dans les zones d'influence de nouveaux centres industriels ou d'anciens centres en développement ainsi que d'agglomérations urbaines. Les tendances à l'émigration définitive à partir de ces régions étaient nettement plus faibles même si elles avaient une densité de population élevée (p.ex. les Pré-Carpathes (Pogórze Karpackie)), qu'à partir des régions où prédominaient les fonctions agricoles, et faiblement équipées en voies de communication avec les centres urbo-industriels en développement (Stasiak 1985). Contrairement aux régions des Carpathes ou du Plateau de Silésie, ces processus se sont déroulés différemment dans les espaces ruraux des Sudètes bien qu'ils aient également conduit à la formation d'une structure fonctionnelle très complexe. Les causes de cet état de choses ne résultent pas tant des différences dans le milieu naturel que d'un développement socio-économique différent dans le passé et, particulièrement des processus d'urbanisation, ainsi que du peuplement des Sudètes par des immigrants après la II^e Guerre mondiale et du développement du secteur socialisé dans l'agriculture.

Une différenciation fonctionnelle particulièrement importante se manifeste dans la voïvodie de Wałbrzych, l'une des plus urbanisées (population rurale - 27,2% en 1982). Sur les espaces ruraux de cette voïvodie prédominent les fonctions industrielles avec une part d'agriculture. Une part importante (près de 70%) de la population rurale travaille en-dehors de l'agriculture, principalement dans l'industrie, notamment dans les communes situées autour de l'agglomération de Wałbrzych. La part des travailleurs dans l'industrie s'y élève à 40-60% de l'ensemble des actifs pour seulement 10-20% dans les communes du nord-ouest où prédominent les fonctions agricoles. Environ 40% de la SAU appartient à l'État. Les exploitations individuelles, pour la plupart de taille moyenne (environ 5 ha/1 exploitation) sont caractérisées par une exigence main-d'œuvre relativement faible et un degré de commercialisation moyen. De plus, dans les régions du sud-ouest, et notamment dans celles qui entourent la Cuvette de Kłodzko (Kotlina Kłodzka), riches en sources minérales, se sont développées des fonctions de cure et de tourisme, y coexistant avec la sylviculture et l'agriculture (Stola 1986). Dans les régions où coexistent différentes fonctions (industrie, agriculture socialisée et individuelle, tourisme) on a affaire à des processus négatifs qui se manifestent par des troubles de l'équilibre écologique et le dépeuplement. C'est particulièrement le cas dans les régions frontalières des Sudètes où l'on assiste à la disparition de l'ha-

bitat rural et une régression du trafic touristique. Cela est dû à la décapitalisation des constructions et de l'infrastructure technique et à des transformations négatives du milieu naturel, à la dégradation des forêts, causées par la pollution industrielle de Pologne et des pays voisins.

L'agglomération de Varsovie exerce une très forte influence sur les transformations de la structure spatiale des espaces ruraux.

Mis à part l'intensification des migrations pendulaires, les transformations de la structure socio-professionnelle de la population, le caractère de la construction etc., l'influence directe de l'agglomération de Varsovie dépasse les limites de la voïvodie de Varsovie et se manifeste avant tout dans le développement et l'orientation de l'agriculture vers la satisfaction des besoins de la population urbaine (Stola 1986; Kulikowski, Gałczyńska 1988). Il faut mentionner que la spécialisation des diverses branches de la production agricole semble se réaliser dans un système sectoriel (les communes du sud - arboriculture fruitière, celles de l'ouest - culture maraîchère en plein champ, communes du nord - culture maraîchère sous serres etc.). La catégorie des espaces à fonctions agricoles et industrielles est majoritaire. La plupart de ces espaces ne possède aucun centre de récréation et leurs fonctions de services pour la population ne sont que faiblement développées, comme dans la plupart des espaces ruraux polonais. Cette catégorie concerne principalement les territoires du sud-ouest de cette voïvodie. La catégorie des espaces à fonctions agricoles et industrielles mais avec une part de sylviculture et de récréation se manifeste dans les communes du nord-ouest et celle des fonctions touristiques, industrielles et agricoles - au sud de Varsovie. Comme dans la zone d'influence de l'agglomération de la zone industrielle de Haute-Silésie (GDF) ou de Cracovie, cette coexistence de diverses fonctions est la cause de maintes situations conflictuelles entre les fonctions elles-mêmes (le plus souvent entre l'industrie, l'agriculture et le tourisme) d'une part, et d'autre part entre ces fonctions et la tendance à préserver l'équilibre écologique des territoires (Grocholska 1986).

Le développement des processus d'urbanisation qui se manifeste par l'accroissement de la population urbaine et non-agricole, influe également sur l'aménagement spatial des territoires éloignés des centres urbains et/ou industriels. Cela se réalise par exemple par le développement des fonctions de loisirs dans les territoires d'attraction naturelle, la spécialisation de la production agricole, p.ex. de fruits ou légumes destinés à l'approvision-

nement des villes. Ces exemples confirment le rôle du facteur d'intensification de l'urbanisation dans l'aménagement du territoire. Ce rôle peut également être d'extensification. Par exemple, dans le cas d'une émigration excessive de la jeune population agricole vers les villes, il se produit des transformations défavorables de la structure démographique de la population rurale, la superficie des terres non-cultivées augmente, l'agriculture devient extensive. Cet état de choses se manifeste dans les espaces ruraux témoins d'un fort dépeuplement (Eberhardt 1983). Suivant le caractère des processus d'urbanisation (et d'industrialisation), leur déroulement convenable ou déformé (p.ex. urbanisation défailante) tout comme l'état de différenciation de la structure socio-économique des espaces ruraux, et leurs conditions naturelles, l'influence exercée par l'urbanisation sur la formation de la structure fonctionnelle peut être très diverse.

Néanmoins, l'urbanisation est en général la cause de transformation des espaces ruraux en espaces multifonctionnels, de la formation d'espaces transitoires entre la ville et la campagne ou d'espaces mixtes. Jusqu'à présent, les changements en question se sont accompagnés en Pologne de transformations néfastes du milieu naturel et de l'accroissement des territoires menacés écologiquement. L'on a également observé des transformations du milieu culturel de la campagne. Tous ces problèmes sont liés à la structure fonctionnelle des espaces ruraux mais ils dépassent le cadre des études réalisées dans ce domaine.

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Fig. 1. Part (%) de la population rurale dans la population totale en 1985.

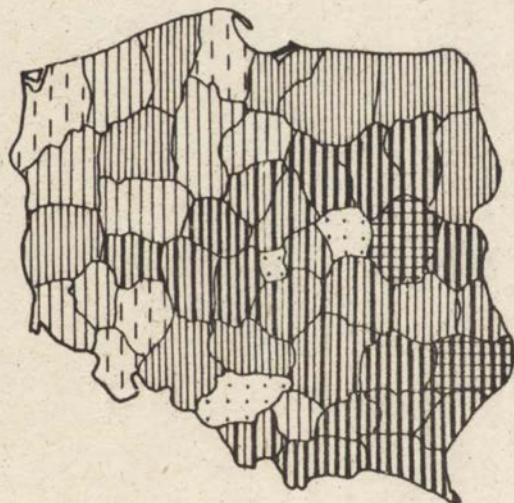


Fig. 2. Part (%) des espaces ruraux dans les espaces des voïvodies en 1981.

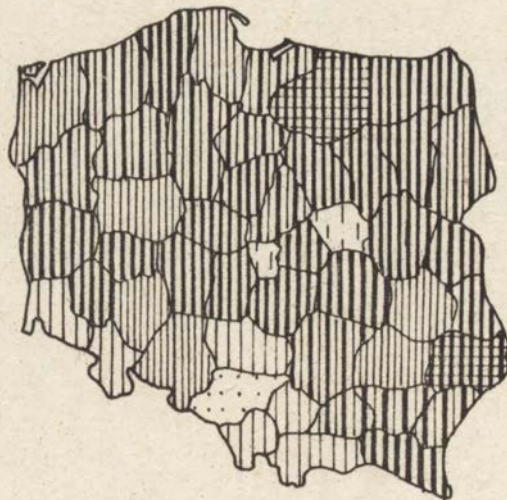
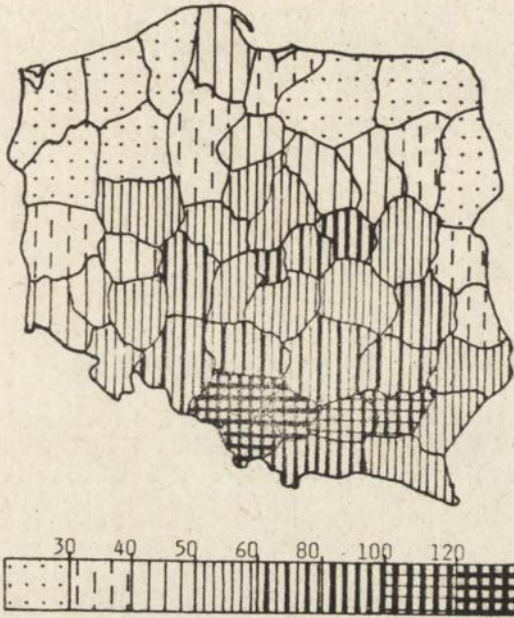


Fig. 3. Densité de la population
rurale (personnes par km²)
en 1982.



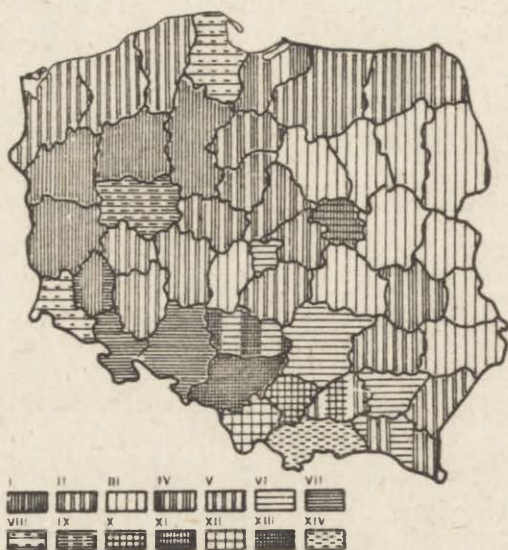


Fig. 4. Les catégories fonctionnelles des espaces ruraux.

- I. Fonctions agricoles et sylvicoles.
- II. Dominante de la fonction agricole, participation de la récréation et de la sylviculture.
- III. Fonction agricole.
- IV. Dominante de la fonction agricole.
- V. Fonctions agricoles et industrielles.
- VI. Fonctions industrielles et agricoles.
- VII. Dominante de la fonction industrielle, participation de l'agriculture.
- VIII. Dominante de fonctions non agricoles (industrie, récréation) et participation de l'agriculture.
- IX-XIV. Catégories particulières.
 - IX. Agro-industrielle avec habitat dortoir.
 - X. Agro-industrielle avec récréation et habitat dortoir.
 - XI. Industrielle et agricole avec habitat dortoir et récréation.
 - XII. De récréation, industrielle, habitat dortoir et agricole.
 - XIII. Dominante de la fonction industrielle avec habitat dortoir.
 - XIV. De récréation, sylvicole et agricole.

Fig. 5,6. Part (%) de la population non agricole dans la population rurale:

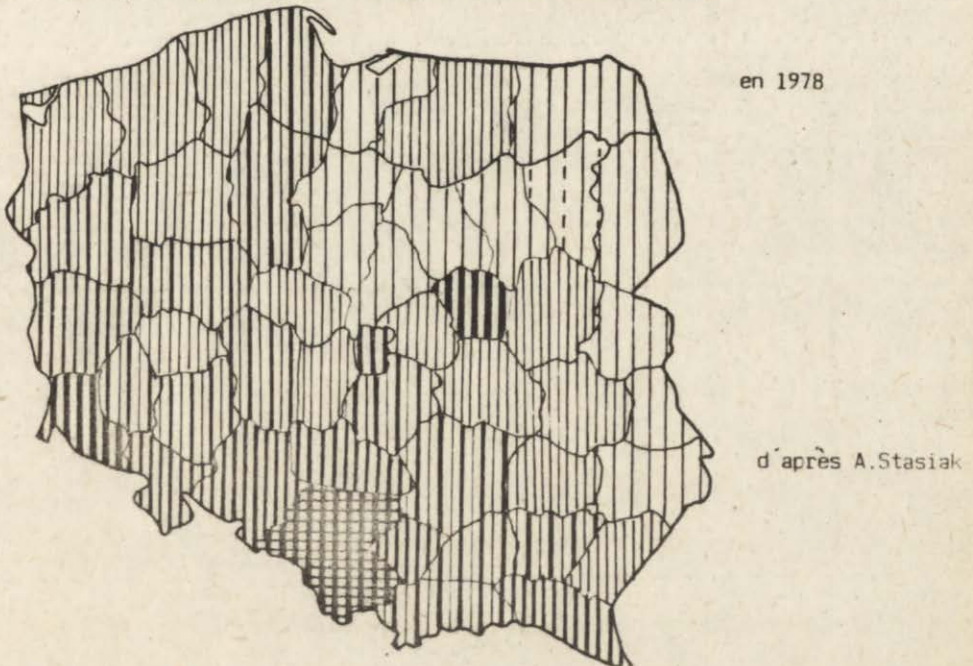
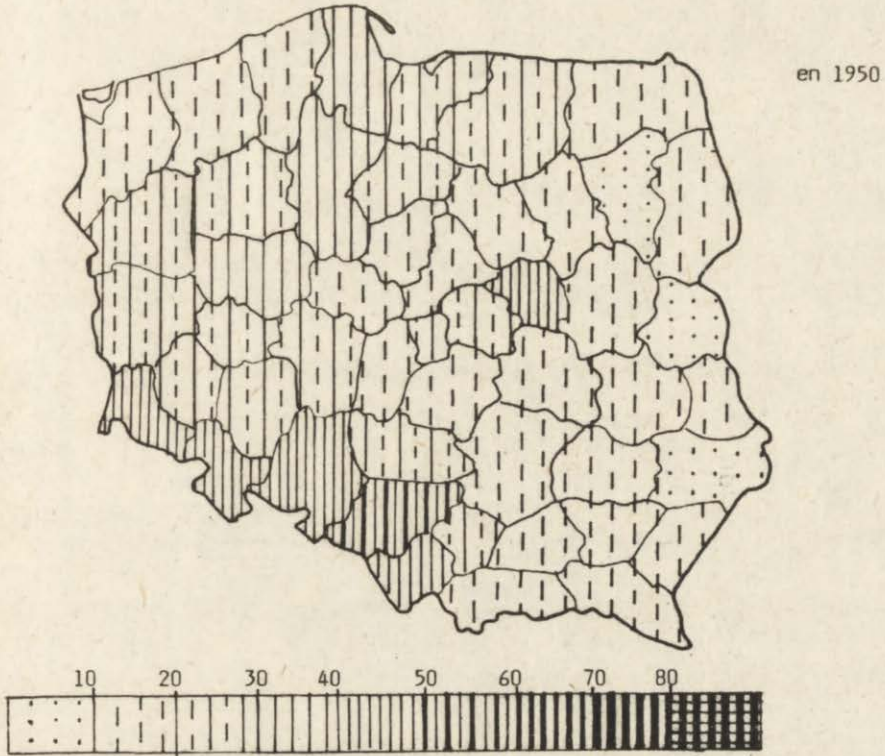


Fig. 7. Part (%) des habitants nés
dans la même localité en 1978.

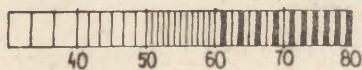
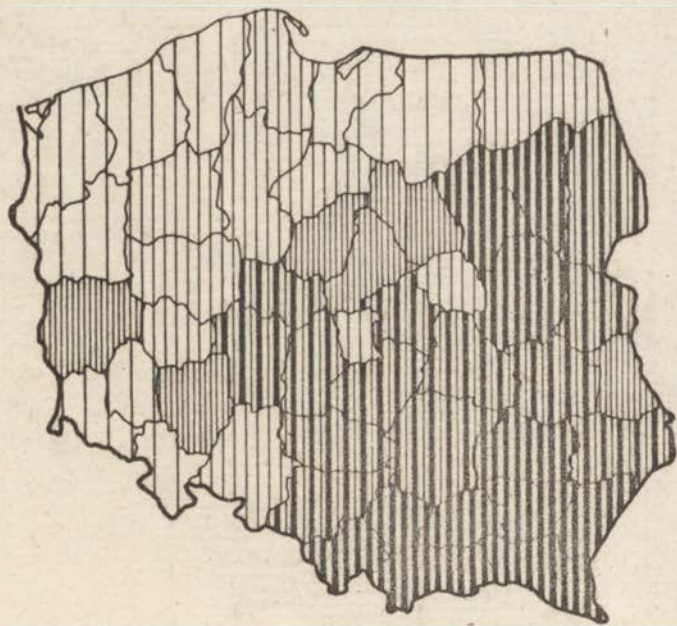
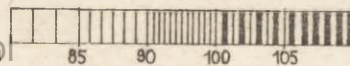
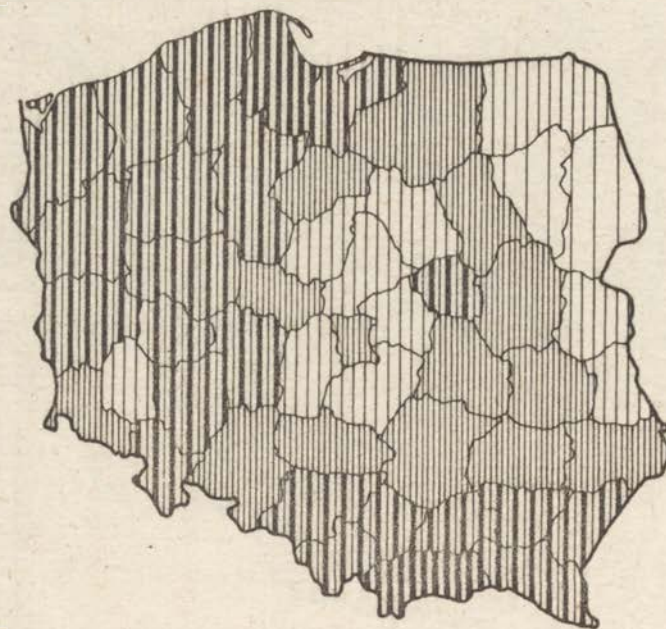


Fig. 8. Les changements dans le nombre
de population rurale en 1979-1985
(31.XII.1978=100).



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PERSPECTIVES ON DEPOPULATION OF RURAL AREAS.
AN ATTEMPT OF PROJECTION AND SIMULATION*

1. Introduction

Recent years have brought an increase of scientific interest in migration processes that lead to depopulation of rural areas. This interest, arising in the research communities of spatial and demographic sciences, resulted from the growing recognition of the scale and significance, as well as potential consequences of the phenomenon.

A number of studies were performed in the 1960s on the subject of rural-to-urban population migrations (Sokołowski 1961; Pohoski 1963). These studies concentrated primarily on the phenomenon of outmigration from the rural areas and its influence on urbanization (Suboczowa 1969) or industrialization (Latuch 1970) processes, as well as economic change (Małysz 1970). Less attention was paid to consequence of the rural outmigration for the outflow areas.

The subject of depopulating areas was taken up in the 1970s, but publications appearing referred to the regional and subregional (Miszevska 1979) or even local scale (for instance, Plewniak 1978). It is only the recent years that brought the country-wide studies on this subject. Some of the recently published reports contain analyses of the depopulation processes over a longer

* The research presented here was supported by Keynote Problem 11.5 "Shaping of demographic processes and socio-economic development of Poland". A shortened version of this paper was published in Kupiszewski 1989.

(Eberhardt 1987) or shorter (Eberhardt 1983; Gawryszewski 1986, 1987a,b; Gawryszewski and Potrykowska 1988) time horizon.

Eberhardt (1983,1987) presents an analysis based upon the gmina (commune or township), level data, while other publications mentioned refer to the voivodship level data. Further analytical steps were taken in the study provided by the team directed by A. Stasiak (Stasiak et al.,1986), insofar as an effort is made there at defining the causes of the situation at hand.

Still, there is a lack of modelling and forecasting approaches in this domain (except for general demographic forecasts formulated at the voivodship level along the rural/urban division, which are recently quite numerous). The present report does not aspire to bridge this gap adequately, but is rather oriented at indication of one of the possible approaches to the question of modelling of depopulation processes.

2. Demographic projections as instruments for studying depopulating areas

Projections meant for studying the depopulation processes can be constructed in the following three ways:

- When constructing projections of population numbers an assumption is made that the area subject to depopulation is constant. In such a case multi-regional (or multistate, if features other than sex, age and place of residence are considered) projection models can best be used, such as for instance the Rogers model (1975), or of Willekens model (Willekens, Drewe 1984) or the accounting-based model of Rees-Wilson (1977).

- Simulation of spatial trends can be performed for a depopulating area, not accounting, however, for the population number and structures. It is typical to use the Monte Carlo techniques (Morris 1965) as the simulation tools in such cases.

- The two above approaches can be used jointly.

The present paper outlines an effort of providing an example for the first approach. The projections of the numbers and the structures of population are made with the help of the multiregional Rogers model (Rogers 1975; Willekens, Rogers 1978; Józwiak 1985).

The model used belongs to the class of reproduction and spatial population redistribution models, referred to also as population growth models.

These models can be generally characterized through the equation:

$$\underline{K}^{(n+1)} = \underline{G}\underline{K}^{(n)}$$

where: $\underline{K}^{(n)}$ denotes the matrix describing spatial and age-specific population distribution, n are indices of consecutive time points. Matrix \underline{K} can be decomposed in the following way:

$$\underline{K}^{(n)} = \begin{bmatrix} \underline{K}_{0n} \\ \vdots \\ \underline{K}_{xn} \\ \vdots \\ \underline{K}_{\Omega n} \end{bmatrix}$$

where a submatrix \underline{K}_{xn} represents the regional population distribution for age group x to $x+h$ years of age at time point n , with h denoting the span of the age group, which is equal to the projection interval. Thus 0 , x and Ω refer to the population age groups, with Ω denoting the oldest age group. The submatrix \underline{K}_{xn} may, in turn, be presented as:

$$\underline{K}_{xn} = \begin{bmatrix} \underline{K}_{xn}^1 \\ \vdots \\ \underline{K}_{xn}^i \\ \vdots \\ \underline{K}_{xn}^N \end{bmatrix}$$

where \underline{K}_{xn}^i is the population in region i , of age between x and $x+h$ years at time n .

Now, the growth matrix \underline{G} is also composed of submatrices and its structure is as follows:

$$\underline{G} = \begin{bmatrix} \underline{0} & \underline{0} & \underline{b}_{\mathcal{L}-h} & \cdots & \underline{b}_{\beta-h} & \cdots & \underline{0} \\ \underline{s}_0 & \underline{0} & \cdot & \cdots & \cdot & \cdots & \cdot \\ \underline{0} & \underline{s}_h & \cdot & \cdots & \cdot & \cdots & \cdot \\ \vdots & \vdots & \cdot & \cdots & \cdot & \cdots & \vdots \\ \underline{0} & \underline{0} & \cdot & \cdots & \cdot & \underline{s}_{\Omega-h} & \underline{0} \end{bmatrix}$$

where \mathcal{L} and β denote, respectively, the youngest and the oldest fertility ages for women. Submatrices \underline{b} have the following form:

$$\underline{b}_x = \begin{bmatrix} b_x^{11} & b_x^{21} & \dots & b_x^{N1} \\ b_x^{12} & b_x^{22} & \dots & b_x^{N2} \\ \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots \\ b_x^{1N} & b_x^{2N} & \dots & b_x^{NN} \end{bmatrix}$$

where b_x^{ij} are average numbers of children, born during a unit of time by a person of x to $x+h$ years of age living in the region i at the beginning of the unit time interval, who are alive in region j at the end of the interval.

N is a number of regions included in the model. Submatrices \underline{s} have the form of

$$\underline{s}_x = \begin{bmatrix} s_x^{11} & s_x^{21} & \dots & s_x^{N1} \\ s_x^{12} & s_x^{22} & \dots & s_x^{N2} \\ \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots \\ s_x^{1N} & s_x^{2N} & \dots & s_x^{NN} \end{bmatrix}$$

in which s_x^{ij} are proportions of the numbers of people living in region i and having x to $x+h$ years of age at time n , who belong to the same cohort and who live in the time point $n+1$ in the region j and, obviously, being of the age of $x+h$ to $x+2h$ years. With regard to the last age group the submatrix s is calculated from different formula (Willekens, Rogers 1978).

Demographic projection objectives may be twofold: a) establishment of the short-, medium- and long-term consequences of current demographic trends, and, on the basis of that; b) more pronounced and, in a sense, enlarged presentation of the phenomena observed at the outset. In this case a model is a specific microscopic tool of demographers and geographers. It should be emphasized that projection generation should not be equated with forecasting (see section 5 for discussion of the difference between forecasts and projection).

3. Delimitation and characteristics of the "regions"¹

On the basis of the ratio of natural increase to migration-bound population outflow calculated for the period of 1981-1985 four "regions" were adopted, after Gawryszewski (1987a). First of these regions encompasses rural territories of the voivodships in which the net migration losses of the rural areas in the period of 1981-1985 surpassed the natural increase by more than 40% (Białystok, Łomża, Piotrków, Płock, Sieradz, and Skierniewice, altogether 6 voivodships). The second region consist of the rural areas of these voivodships in which net migration was higher that the natural increase by at most 40%.

The voivodships accounted for here were: Biała Podlaska, Chełm, Ciechanów, Częstochowa, Jelenia Góra, Kielce, Konin, Legnica, Lublin, Łódź, Ostrołęka, Radom, Siedlce, Suwałki, Tarnobrzeg, Włocławek and Zamość, altogether 17 voivodships. Third region consists of the rural areas of these voivodships, where rural population increase took place (the voivodships of Warsaw, Bielsko-Biała, Bydgoszcz, Elbląg, Gdańsk, Gorzów, Kalisz, Katowice, Koszalin, Racow, Krosno, Leszno, Nowy Sącz, Olsztyn, Opole, Piła, Poznań, Przemyśl, Rzeszów, Słupsk, Szczecin, Tarnów, Toruń, Wałbrzych, Wrocław and Zielona Góra, altogether 26 of them). The last, fourth region is composed of all cities and towns in Poland.

The process of depopulation of the countryside has quite a clear spatial image, see Fig. 1: this process is the most advanced in the ring of voivodships surrounding Łódź and in the Białystok and Łomża voivodships. Medium and low advancement of the depopulation processes can be observed along the so called Eastern Wall, with exception of its Southern part, in central Poland with exception of Greater Poland and of the capital voivodship of Warsaw, as well as in the Western part of the Sudets Mts. and in the neighbouring Legnica voivodship. Southern Poland, the Western and Northern Territories and the capital voivodship have not suffered losses of rural population in the five year period of 1981-1985.

¹ The term "region" is not used in this paper in the strict sense in which it is applied by geographers. A convention was adopted, often used in spatial demography, according to which "region" may denote an area or even a subpopulation inhabiting this area.

A synthetic characterization of the regions distinguished, put together on the basis of the state for 1985 is presented in Table 1. Analysis of values contained in this table leads to the conclusion that the region featuring the highest intensity of depopulation processes is characterized not only by the highest population outflow resulting from outmigration (net migration rate equals to - 11.1%), but also by the lowest natural increase (4.9%), the latter resulting from the highest mortality and second to lowest (i.e. excepting the urban region) fertility, as well as the highest average age of population. The total population loss rate of this region attained in 1985 - 6.2%. Thus, this region is handicapped with regard to many aspects, which is the direct consequence of the delimitation procedure.

On the other hand, the rural region which does not suffer population losses has relatively young population (average age - 32,39 years), the highest fertility rate (21.8%), the highest - except for the urban region - mortality rate (10.3%), the greatest natural increase (11.5%) and the greatest net in migration for the rural regions (-6.4%).

The third rural region, featuring medium and low advancement of the depopulation processes is characterized by the highest GRR (1.406), relatively high mortality rate (12.2%) and moderate, with comparison to natural increase (7.9%), net migration rate (-9.1%).

In the urban region one could observed the lowest natural increase (7.2%), which is enhanced by positive net migration (5.2%). It should be noted that although net migration per thousand inhabitants does not seem to be very high, it is an extremely important factor in the population growth of an urban region because more than 60% of Polish population inhabited this region in 1985.

4. Projection results

If we treat results of the projection as a warning forecast, i.e. one which gives an answer to the question: "what would happen if the present values of age-dependent migration, birth and mortality coefficients persisted in particular regions", then a quantitative assessment of the consequences of this situation is made possible.

The delimitation procedure does to a certain degree predetermine the direction of changes of the demographic processes within particular regions. Projections make it possible only to assess the depth of depopulation processes, or the degree of threat to particular classes of rural areas, resulting from disadvantageous demographic phenomena.

All the analyses of projection results were carried out for the period of 1985-2045, i.e. encompassing short-, medium- and long-term time horizon.

Consider first, what changes in population and its distribution would occur if projection came true. In such a case the two depopulating regions, the one with intensive depopulation and the other one, with slow depopulation, shall during the first 15 years of the projection time period lose annually some 15 thousand persons on the average. Because of the differences in absolute population numbers in these two regions (Table 1) the relative losses resulting from the same absolute outflow will be much more acute for the region where depopulation processes are more advanced. Starting from the year 2000 the process of depopulation shall be stemmed in the rural region with the presently less advanced depopulation. This is due to high GRR and relatively young age structure of the population at the outset of the projection. The rural region with growing population shall in the period 1985-2000 still be growing, at the pace of 21 thousand people annually on the average. It is characteristic, however, that the shares of rural populations in all the rural regions in comparison with the total Polish population are systematically decreasing. On the other hand, the "urban" region displays the constant increase of its population share. Over the coming 60 years the share of the urban population shall be growing by 0.11% annually on the average. Note that the model does not take into account the process of incorporation of rural areas to towns.

Besides the overall population changes there is also the question of changes in the age and sex structures of population. This version of the multi-regional model which was used in this study does not allow for observation of the sex structure, so that only changes of the age structure can be considered.

Projection results indicate that over the next 60 years the average age of the Polish population shall increase by 2.1 years. This age increase is due to corresponding increases in the two regions with growing population (in the growing rural region the average age increases from 32.4 years in 1985 to 33.0 in 2045, and in the urban region - from 33.1 years to 36.4 years). On the other hand, the two other - depopulating - rural regions display a decrease of the average age of population within the time horizon of the projection. The average age change observed in the regions remains in accordance with the changes of shares of the three basic age groups (children and youth - i.e. 0-19 years; labour age population, i.e. 20-59 years; and the post-labour age population - 60 years and more). In both the rural depopulating regions the

shares of the first age group are systematically growing, while the shares of productive age population decreases. An opposite situation is observed in the other two regions, except for minor deviations from this pattern. This situation is advantageous, since a younger population age structure assures higher fertility, and therefore a better possibility of compensating for migrational losses.

These unexpected results of the projection (lowering of the average age of population in regions suffering from depopulation process!) could be attributed to two factors: firstly to high GRR (this refers only to the region featuring low and medium level of depopulation) and secondly to the difference between average age of outmigration. The former is much lower than the latter.

5. Simulation - a concept and assumptions

In the mathematical-statistical research into the spatial system of population the following four development stages can be distinguished:

- a) construction of the model of the population growth,
- b) projection of population growth,
- c) simulation of population growth,
- d) forecasting the population growth.

In the first phase the goal of the research work is to determine the elements of the system and the interdependences (interactions) among these elements, and then to describe them with the mathematical-statistical formulae. On this basis the assessment of future behaviour of the system is carried out, under the assumption of constancy of trends observed in the past (projection). For cognitive purposes certain definite trajectories of changes of population trends in the future can be adopted, differing from the ones observed in the past, so that projections of the behaviour of the system can be carried out under these assumptions, leading to simulation analysis. To the extent to which one can consider that realization of a given set of assumptions is more probable than of any other set assumptions, the corresponding simulation can be called forecast (Shryock, Siegel 1976; ter Heide 1984).

Referring to the Rogers model, it is sufficient for purposes of simulation to modify at each step of the projection the age-dependent migration, birth and death rates and then to recalculate the growth matrix G .

Depopulation processes in rural areas depend to a large degree upon agricultural policy of the state (Gawryszewski 1987a) and, more generally, upon

economic policy of the state. The Rogers model does not account for exogeneous factors and therefore is not sensitive to shifts of the economic environment. Still, simulation runs can be performed to provide a support for the analysis of consequences of changes in definite demographic patterns of the population inhabiting a given region.

It is a common conviction that economic changes influence in the strongest way the migration process, while attainment of shifts in fertility or mortality solely through economic measures is a much more difficult task. This is why in the simulations changes of migration rates have been adopted rather than changes of all rates. This does not limit the generality of the concept of simulation. Until now simulation studies using multiregional migration models have been conducted by Dziewoński and Korcelli (1981a,b) as well as by Scherbov and Usbeck (1983) and others. For review and other references see Korcelli (1988).

The simulations performed to date had one important methodological shortcoming, i.e. lack of theoretical basis for adopting these and not other value changes for the age-dependent fertility, mortality and migration rates. The present work does not avoid, however, this shortcoming and all the scenarios of changes have an arbitrary nature². Still, the analysis presented is of interest not only as a purely academic consideration or a computational exercise, since it shows what would be the population distribution and structure, if changes assumed in the scenarios were implemented in some future period. The possibility of applying the multiregional population models directly for simulation is also shown, however following Rogers (1988) conception, additional submodels necessary for calculation of the age-dependent rates of natural and migratory population dynamics should be developed.

As it was mentioned, it has been assumed for purpose of simulation, just as it was done in the model itself, that the age-dependent population fertility and mortality rates do not change. It has also been assumed that owing to differentiated economic policy the rural-to-urban migration rates shall undergo changes. Three following scenarios of changes were adopted:

- The first scenario assumed reduction by 10% of the values of the age-dependent migration rates for the rural-to-urban migrations from these

² Rogers (1988) has proposed solution which could overcome this difficulty.

rural areas where depopulation has progressed the most, and reduction by 5% of these rates for the less depopulating rural areas. The reductions assumed would be applied consecutively for the successive five-year periods from 1990 to 2005. The basis for these reductions are rates observed in 1985. Afterwards the values of the age-dependent migration rate shall remain constant. Such a scenario may come true as a result of a firm and selective policy aiming at stopping of depopulation processes in these regions, where these processes have already progressed the furthest, and slowing down of these processes there where they have not progressed that far³.

- The second simulation was conducted under the assumption that there will be a reduction of the values of age-dependent migration rates to towns in all the rural regions. This reduction will amount, for the 5 years periods, to 5% for the rural region with significant depopulation intensity, 3% for the rural region with less intensive depopulation and 1% for the rural region in which no depopulation is observed. As before, these changes shall be applied to three consecutive 5-year periods over the years 1990-2005. Such changes may result from application of a unified policy aiming at braking the outflow of rural population to towns.

- It is assumed in the third simulation that the age-dependent rural-to-urban migration rates will increase, for the five-year periods, by 5% for the rural region with the most advanced depopulation, by 3% for the rural region with the less intensive depopulation processes, and by 1% for the third rural region. This shall occur for three consecutive 5-year periods, from 1990 to 2005. Such a situation may arise as a result of too small policy - induced changes, mentioned previously in points 1) and 2) and in the footnote or as a result of a lack of such changes or, finally, as a consequence of deterioration of the broadly conceived economic situation of the countryside.

³ This paper does not specify concrete steps which should be taken in order to stem the outflow of rural population to towns, since this problem does not constitute the subject of the paper. The term "policy aiming at counteracting the depopulation of rural areas" may have a very broad meaning - from a change in the image of the role of peasants as perceived by society through a change of legal regulations, management mechanisms and agricultural services, development of local rural industry, and even infrastructural investments. Without special research, reaching far beyond the usual domains of geography and demography, it cannot be uniquely stated how big the changes and investment outlays must be in order to attain the assumed levels of changes in the age-dependent migration rates.

6. Simulation results

In further course of the paper structural changes as well as various trajectories of development of the total and regional population numbers, obtained from the projection and from the simulation runs shall be presented. More important results of simulation and projection runs are contained in Table 2.

Since simulation runs did not account for changes in the age-dependent rates of fertility and mortality, the changes of total population numbers are not too big (for the year 2045, i.e. for the 60-year time horizon, the difference between the greatest total population number obtained in the first simulation run and the least population number obtained in the third simulation run does not exceed three million) and result primarily from the assumption adopted in the model that migrating women adopt the fertility patterns of the region to which they move.

Changes of population numbers in particular regions were of course of a more complicated character and resulted from both the assumed changes in population movements and the already mentioned assumption as to the shifts of fertility patterns of migrating women as they change their region of residence.

On the basis of the course of changes which the population numbers had been undergoing over time, two types of regions can be distinguished. The first type of regions encompasses those areas which are not threatened with the depopulation processes and in which there is a constant growth of a linear nature. The second type of regions is characterized by the presently occurring depopulation, so that in the course of projection first a continuation of the depopulation process and then, with the passing of time and depending upon the adapted scenario of changes - a slowdown or even reversal of this process is observed.

Rates related to the urban region and contained in the model were kept constant during simulation course. Changes influencing this region are in a way indirect and result from the outflow rate changes in other regions. A significant differentiation of the size of regions (small depopulating regions and larger regions with growing population) causes that even important changes in the outflow rates for the depopulating regions had a relative small influence upon the inflow rates for the growing population regions, especially for the urban region. After 60 years the difference between the values obtained in simulation 1 (minimum value) and simulation 3 (maximum value) insignificantly exceeds 1 million for the urban region. Note that simulation runs 1 and 2 yield very similar results.

The rural region which is not losing population presently has a very much similar course of population increase, although mechanisms behind this increase are somewhat different than in the urban region. The most important conclusion states that the changes of the age-dependent migration rates influence the speed of population increase, but do not result in significant disturbances of the growth trajectories. This situation is a consequence of a low level of changes assumed in the simulation runs (+1% and -1%). It must be noted here, that fertility in this region ($GRR = 1,375$) has much higher dynamics compared to outmigration.

The region with the low present intensity of depopulation shall stop losing population after 30 years under the assumption that migration rates shall be constant, while the assumption of a reduction in these rates (as introduced in simulations 1 and 2 shortens the time until depopulation stops down to 15 years. In the simulation run 1, in which 5% reduction of the outflow rates for the 5-year periods from 1990 to 2005 were assumed, population increases reaching 10-20 thousand per annum are observed after 2015. In the simulation run 2 (3% reduction in the same period) the population increments are smaller and reach from just a few to some 10 thousand per annum.

A pronounced population increase for the region with intensive depopulation processes can occur only if the 10% reduction of outflow rates is assumed. Stabilization of population numbers in this region can be attained with the 5% reduction of outflow rates, but it will take place only after 40 years of projection.

Changes in population inhabiting particular regions are related to changes of weights of these regions, where weights are measured through percentage shares of the total population. In all the simulation runs commented here the share of the urban region increases from 60% in 1985 to 65% in simulation 1 and 60% in simulation 2 after 60 projection/simulation years. The shares of all the rural regions are systematically decreasing in the runs considered. With regard to the most intensively depopulating region, its population share shall drop after 60 years by as much as 1/4 according to the most advantageous variant (run 1) and even by almost half according to the least advantageous variant.

Regions with increasing population feature an increase of the average population age along the projection time axis. This average age increase proceeds until 2035 and thereafter a slight decrease follows. The highest average ages

were obtained for the urban region in the simulation 1 and in the projection, while the lowest in the simulation run 3. Strictly opposite ordering is encountered in the depopulating rural regions. This phenomenon results from the assumed reductions in the age-dependent outflow rates for these regions in the first two simulations runs. These reductions applied equally to all the age-dependent outflow rates, but because of strongly age-selective nature of migrations actual migrations of various age groups are quite different as to absolute magnitudes and therefore the drop of the average population age ensues. A reverse mechanism related to changes in the inflow of young people to the urban region is the explanation for the average age shifts there.

According to the logic of the phenomenon described the changes of the average age correspond to changes of the percentage shares of particular population groups (ages 0-19, 20-59, 60+). The greatest shares of the first two population age groups in the depopulating regions occur in the simulation run 1, somewhat smaller in the run 2, then in the projection and the least in the simulation run 3. In the urban region this succession is reversed. Naturally, the shares of the oldest age group in each region behave in the way opposite to the shares of the two younger age groups.

7. Conclusion

Analysis of results of projection and simulation of changes which Polish rural areas could undergo over time constitute the subject of the present paper. The aim of the paper is first of all to introduce certain methodological concepts which are new for the Polish research practice. Note that the simulation conducted by Dziewoński and Korcelli (1981a,b), assumed only a modification of the input data. Thus, the new concepts include application of such techniques as multiregional simulation of the population growth and structures with the age-dependent migration, fertility and mortality rates changing over time, the latter allowing a departure from a very significant limitation of this type of models, consisting in the adoption of a non-realistic assumption of constancy of demographic behaviour in time. The approach presented has still a number of shortcomings, including first of all arbitrary adoption of changes in the model rate values and lack of separate treatment of the subpopulations defined according to sex. Future solutions (Rogers 1988) ought therefore to go in the direction of development of submodels for representation of changes in the age-dependent fertility, mortality and migration rates

and their incorporation into the model here presented. Such shall be the subject matter of further work.

Projection results shed light on the consequences of the demographic behaviour patterns observed in 1985 and allow a better understanding of demographic consequences of the rural depopulation processes. Particular apprehension is caused by the potential future course of events in the areas where depopulation processes are the most advanced. It seems that future research on depopulation processes should include a study aiming at a demographic forecast of this phenomenon. Because of the crucial role played by migrations in this process it is extremely important to use multiregional demographic models in such a forecast.

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Table 1

Poland	Rural areas characterized by			Urban areas	
	moderate depopulation	high depopulation	gaining of population		
<u>Population</u>					
Number	37340460	5069879	1606728	8178233	22485630
%	100.0	13.6	4.3	21.9	60.2
M. Age	33.3	34.85	36.14	32.39	33.08
<u>Births</u>					
Number	685304	101971	29474	178206	375653
%	100.0	14.9	4.3	26.0	54.8
Gross r.	1.163	1.406	1.319	1.375	1.028
Crude r. (*1000)	18.353	20.113	18.344	21.790	16.706
M. Age	26.42	26.45	26.36	26.63	26.46
<u>Deaths</u>					
Number	381454	62101	21536	84563	213254
%	100.0	16.3	5.6	22.2	55.9
Gross r.	2.847	2.966	2.86	2.901	2.792
Crude r. (*1000)	10.216	12.249	13.404	10.340	9.484
M. Age	66.93	68.69	69.52	67.04	66.12
e (0)	70.71	70.75	70.65	70.01	70.64
<u>Arrivals</u>					
Number	351624	39838	15119	74977	221690
%	100.0	11.3	4.3	21.3	63.0
Gross r.	0.718	0.627	0.741	0.677	0.760
Crude r. (*1000)	9.417	7.858	9.41	9.168	9.859
M. Age	35.40	35.90	32.98	35.21	35.76
<u>Departures</u>					
Number	351624	86042	32941	127523	105118
%	100.0	24.5	9.4	36.3	29.9
Gross r.	0.718	1.288	1.595	1.144	0.376
Crude r. (*1000)	9.417	16.971	20.502	15.593	4.675
M. Age	35.40	32.81	32.33	34.86	37.86
<u>Net. migr.</u>					
Crude r. (*1000)	0.0	-9.113	-11.092	-6.425	5.184

Basic characteristics of depopulation processes in Poland as observed in 1985.

Source: own computation basing on the CSO's data.

Table 2

Projection and simulations: evolving patterns of the processes of depopulation of rural areas

Year	Total	Rural areas characterized by			Urban areas	Total	Rural areas characterized by			Urban areas
		moderate depopulation	high depopulation	gains of population			moderate depopulation	high depopulation	gains of population	
Projection						Simulation 1				
Population number (in thousands)										
1985	37340	5070	1607	8178	22486	37340	5070	1607	8178	22486
2000	40997	4915	1461	8649	25972	41000	4967	1499	8649	25885
2015	44625	4873	1370	9244	29137	44646	5079	1508	9238	28820
2030	47567	4924	1324	9809	31510	47631	5281	1552	9797	31002
2045	50387	5022	1307	10377	33681	50528	5524	1615	10357	33032
Share of population in regions										
1985	100.00	13.58	4.30	21.90	60.22	100.00	13.58	4.30	21.90	60.22
2000	100.00	11.99	3.56	21.10	63.35	100.00	12.12	3.66	21.09	63.13
2015	100.00	10.92	3.07	20.71	65.29	100.00	11.38	3.38	20.69	64.55
2030	100.00	10.35	2.78	20.62	66.24	100.00	11.09	3.26	20.57	65.09
2045	100.00	9.97	2.59	20.60	66.84	100.00	10.93	3.20	20.50	65.37
Mean age										
1985	33.30	34.85	36.14	32.39	33.08	33.30	34.85	36.14	32.39	33.08
2000	34.51	34.68	36.18	32.73	34.97	34.50	34.59	35.93	32.73	34.73
2015	35.15	33.95	35.61	32.89	36.05	35.14	33.68	34.91	32.89	36.13
2030	35.56	33.83	35.38	33.18	36.58	35.53	33.53	34.64	33.19	36.65
2045	35.38	33.47	34.92	33.00	36.42	35.33	33.23	34.40	33.00	36.46

Total	Rural areas characterized by			Urban areas	Total	Rural areas characterized by			Urban areas
	moderate depopulation	high population gains	of population			moderate depopulation	high population gains	of population	
Simulation 2					Simulation 3				
37340	5070	1607	8178	22486	37340	5070	1607	8178	22486
40999	4947	1480	8667	25906	40995	4884	1442	8632	26038
44641	4997	1440	9313	28891	44608	4748	1300	9174	29387
47617	5138	1437	9929	31113	47517	4711	1212	9689	31904
50497	5321	1457	10547	33173	50277	4729	1164	10208	34176
100.00	13.58	4.30	21.90	60.22	100.00	13.58	4.30	21.90	60.22
100.00	12.07	3.61	21.14	63.19	100.00	11.91	3.52	21.06	63.51
100.00	11.19	3.23	20.86	64.72	100.00	10.64	2.91	20.57	65.88
100.00	10.79	3.02	20.85	65.34	100.00	9.91	2.55	20.39	67.14
100.00	10.54	2.89	20.89	65.69	100.00	9.41	2.32	20.30	67.98
33.30	34.85	36.14	32.39	33.08	33.30	34.85	36.14	32.39	33.08
34.50	34.63	36.05	32.71	34.99	34.51	34.74	36.31	32.74	34.95
35.14	33.78	35.25	32.85	36.11	35.16	34.13	36.02	32.93	35.99
35.54	33.65	34.99	33.14	36.64	35.58	34.03	35.81	33.22	36.52
35.34	33.32	34.65	32.97	36.45	35.42	33.62	35.21	33.03	36.39

Year	Total	Rural areas characterized by			Urban areas	Total	Rural areas characterized by			Urban areas
		moderate depopulation	high gains of population				moderate depopulation	high gains of population		
Projection					Simulation 1					
Share of the age group 0-19 years										
1985	32.33	32.85	31.32	35.15	31.26	32.33	32.85	31.32	35.15	31.26
2000	31.80	34.51	32.23	35.92	29.89	31.80	34.57	32.37	35.92	29.87
2015	31.17	35.20	32.78	35.53	29.04	31.20	35.43	33.37	35.53	28.96
2030	30.79	35.27	32.92	35.30	28.60	30.86	35.50	33.48	35.30	28.53
2045	31.02	35.67	33.35	35.56	28.84	31.12	35.85	33.76	35.56	28.81
Share of the age group 20-59 years										
1985	53.71	49.01	49.04	50.52	56.27	53.71	49.01	49.04	50.52	56.27
2000	53.04	46.82	47.14	49.30	55.79	53.03	46.90	47.35	49.30	55.78
2015	51.74	47.34	47.60	49.53	53.38	51.72	47.60	48.25	49.52	53.33
2030	52.02	47.83	48.21	49.35	53.67	51.98	48.24	49.20	49.34	53.59
2045	51.61	47.72	48.27	49.10	53.10	51.55	47.99	48.88	49.09	53.05
Share of the age group 60 and more years (%)										
1985	13.95	18.14	19.64	14.33	12.47	13.95	18.14	19.64	14.33	12.47
2000	15.17	18.66	20.63	14.78	14.32	15.16	18.53	20.29	14.78	14.35
2015	17.08	17.46	19.63	14.94	17.58	17.08	16.97	18.38	14.95	17.71
2030	17.18	16.90	18.86	15.35	17.73	17.17	16.27	17.32	15.36	17.88
2045	17.36	16.60	18.38	15.34	18.06	17.32	16.16	17.36	15.34	18.14

Source: own computation on the basis of the Central Statistical Office data.

Total	Rural areas characterized by			Urban areas	Total	Rural areas characterized by			Urban areas
	moderate depopulation	high	gains of population			moderate depopulation	high	gains of population	
Simulation 2					Simulation 3				
32.33	32.85	31.32	35.15	31.26	32.33	32.85	31.32	35.15	31.26
31.80	34.55	32.30	35.92	29.87	31.80	34.48	32.15	35.91	29.91
31.20	35.34	33.09	35.56	28.98	31.15	35.04	32.43	35.50	29.10
30.84	35.41	33.22	35.33	28.55	30.74	35.12	32.59	35.27	28.65
31.10	35.78	33.57	35.59	28.81	30.94	35.56	33.12	35.53	28.86
53.71	49.01	49.04	50.52	56.27	53.71	49.01	49.04	50.52	56.27
53.03	46.87	47.24	49.31	55.78	53.04	46.77	47.03	49.29	55.79
51.72	47.50	47.94	49.56	53.34	51.76	47.18	47.22	49.49	53.41
51.99	48.08	48.73	49.40	53.61	52.06	47.56	47.64	49.30	53.73
51.57	47.88	48.58	49.13	53.06	51.66	47.55	47.95	49.07	53.13
13.95	18.14	19.64	14.33	12.47	13.95	18.14	19.64	14.33	12.47
15.16	18.58	20.46	14.76	14.34	15.17	18.74	20.82	14.80	14.30
17.08	17.16	18.97	14.88	17.68	17.09	17.78	20.35	15.01	17.48
17.17	16.51	18.05	15.27	17.84	17.20	17.32	19.77	15.44	17.62
17.33	16.33	17.85	15.28	18.12	17.40	16.89	18.93	15.39	18.01

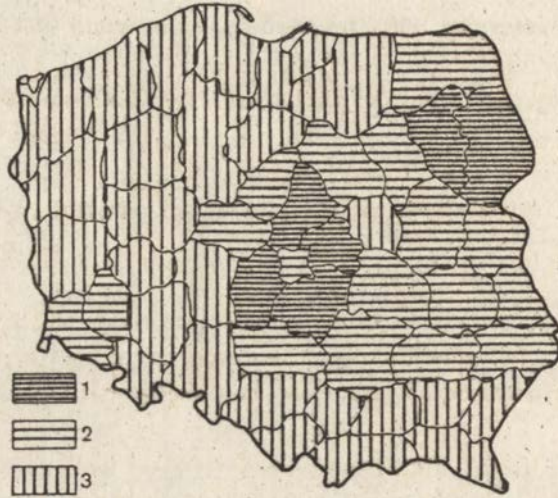


Fig. 1. Depopulation of rural areas in the years 1981-1985

- 1 - voivodships in which migration-related population losses in rural areas exceeded natural increase by more than 40%;
- 2 - voivodships in which migration-related population losses in rural areas exceeded natural increase by 40% or less;
- 3 - voivodships in which population increase in rural areas was observed.

Source: A. Gawryszewski 1987a.

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SUPERIMPOSED REGIONS:
TOWARDS A THEORY

1. THE PROBLEM

The subject of this paper is to outline a theory of historically new regions (i.e. those developed as a result of the industrial revolution) which have developed across traditional inter-regional divides.

Three basic notions have been used to relate to those regions, i.e. interstitial areas/regions (Marshall 1971, Rykiel 1985a), bare-joint areas/regions (Rykiel 1981, 1985a), and superimposed regions (Rykiel 1984). Each of the three has different connotations. The first notion was developed within the central place theory context. The term "bare-joint" area refers to the terminology used in electricity engineering and more specifically to the situation of two pieces of wire which are not banded but just next to one another, i.e. bare joined, the bare joint being the most essential element of the whole system.

While the bare-joint area refers to a statically analysed territorial pattern, it is the superimposed region that is set up in a dynamic context. This term refers more explicitly to the territorial framework by making the assumption that the industrial revolution induced a new regionalization of its own which was basically inconsistent with the traditional regionalization upon which it was superimposed (Rykiel 1984). Many new regions are, therefore, divided by the traditional inter-regional boundaries which, even though abandoned formally, did not disappear functionally. What the concept of the superimposed region emphasizes is the inertia in the intra-regional integration;

this implies the boundary effect and hence spatial barriers which hamper the integration process within the new regional framework. It is assumed that while the historically new region may be advanced in its economic integration, its social and, especially, psycho-social or mental integration may be much less advanced. It is in this latter context that the outmoded territorial pattern may still exist.

The above provided arguments suggest that it is essential for the theory of the superimposed region to explain: (1) the relations between the concept of boundary and that of spatial barrier; (2) the nature of the superimposition; (3) the relation between the social and the economic in the nature of the socio-economic region; and (4) the nature of development and integration.

2. THE MAINSTREAMS OF THE THEORY

2.1. The boundary vs. spatial barrier concept

The notion of boundary has been, even though informally, related to that of spatial barrier for a long time (Holdich 1916; Boggs 1940; Reynolds, McNutty 1968). While in regional and political geography the notion of boundary has been preferred, that of spatial barrier has rarely been used outside the spatial innovation diffusion context (Łoboda 1983).

In regional geography, boundaries have traditionally been divided in natural and artificial. This division has, however, been strongly criticized (Semple 1911, Hartshorne 1938, Sanguin 1983, Rykiel 1990). To this dichotomic division, functional analyses were preferred which allowed to relate formally the notion of boundary with that of spatial barrier. The main difference between the two is confined in the fact that the notion of boundary is related to that of formalization while the notion of spatial barrier is related to that of permeability. Thus boundary is related to the concept of linearity while spatial barrier is related to that of areality whereas linearity is a special case of areality.

Two genetical categories of boundaries were identified, i.e. antecedent and subsequent (Hartshorne 1933). This division applied formally to boundaries but de facto to spatial barriers. While "erosion" of the antecedent barriers implies a spatial integration, the development of the subsequent barriers involve de-organization of the prevailing patterns of interrelationships.

Rykiel (1986) proposed a formal/informal dichotomy in the classification of spatial barriers. As formal spatial barriers, political boundaries can be classified - smoothly, according to the degree of their formalization, or discretely, as either soft or hard, the latter being accompanied by a boundary control. Contemporary political boundaries are spatial barriers for the spatially fixed relations. These same boundaries need not, however, be spatial barriers for the spatially flexible relations.

It is worth noting here that the concept of the superimposed region refers to the notion of the antecedent spatial barrier and its erosion with the regional development.

2.2. The nature of the superimposition

What was provided in this section is based on the assumption that the notion of the superimposition, even though not the term, has long existed in geographical theories. The scope of this section is to point to the respective theories. This discussion was based on the typology of spatial barriers. Thus the notion of the superimposition as referred to that of informal spatial barriers is related to the urban development theories; as referred to the notion of soft formal spatial barriers, the notion of the superimposition is related to the polarization concepts; and as referred to the notion of hard formal spatial barriers, the notion of the superimposition is related to the concept of border region.

2.2.1. The concept of the superimposition in the urban development theories

In the urban development theories it is assumed that the development of superimposed regions is dependent on that of their centres. There are three basic theories in this group: the central place theory, the urban economic base theory, and the economic landscape theory.

In the central place theory context, the question of the superimposition is considered in terms of the interstitial placement of regional centres (Marshall 1971). The market area of any subregional centre is a superimposed area because each of those centres is located at the apex of the boundaries of the market areas of three regional centres, i.e. each of the three parts of a sub-region is subordinated to different regional centre. The fact that the sub-regional centre is located, deterministically, at the apex of the three region-

al boundaries or, probabilistically, in the interstice between the market areas of the three regional centres explains the potential possibility of the subregional centre to perform regional functions. In order to transform the potential into essential possibility in cases of some subregional centres, both economic and non-economic factors must exist, however not considered in the Christaller assumptions, which make those subregional centres competitive to some regional centres. It is referred here to the factors which "dynamize" the central place theory (Berry, Garrison 1958; Bery 1963; Rushton et al., 1967; Parr 1977). This new regional centre would be one of a superimposed region in which the traditional regional boundaries would still exist as informal spatial barriers of economic character.

The provided arguments are based on the assumption that the considered new regional centre is located exactly on the boundaries between the traditional regional centres. Some authors suggest, however, that the exactness is not necessary (Berry, Garrison 1958). If so, the location of the new regional centre near the traditional inter-regional boundaries may be explained in terms of the urban economic base theory.

While the central place theory is based on the concepts of service and gravitation, the urban economic base theory is based on those of exchange and interactions. The former pair of notions imply functional homogeneity while for the latter pair structural heterogeneity is essential. Regions of those cities are structurally differentiated while the traditional boundaries are determined by informal barriers of the natural origin. While in the central place theory the superimposition is a result of economic rules, in the urban economic base theory it is a result of the economic exploitation of environment.

In the economic lanscape theory, the superimposition is considered in terms of informal spatial barriers or boundaries of market areas, involved, however, by a hard formal spatial barrier, i.e. a state boundary. While the boundaries of "economic landscapes" tend to eliminate indispensable interstices wherever possible, state boundaries tend to create unnecessary interstices wherever possible (Lösch 1961).

2.2.2. The concept of the superimposition and the polarization concepts

The core-periphery concept stressed this simple dichotomy in socio-economic territorial systems (Friedmann 1967). Once developed, this spatial dichotomy tends to reinforce disproportions in space economy. Other authors

(Friedmann, Alonso 1964) questioned, however, this dichotomy. Generally, however, what the core-periphery concept stresses is a very stable spatial polarization, even though this concept implies a core/periphery dialectic.

Polarization is a central notion for arguments provided in the growth pole theory context. While the core-periphery concept considers one socio-economic territorial system, the growth pole theory refers to the system of such systems. Growth poles are local cores while economic growth may result in a spatial shift of growth poles. Importantly, the question of the superimposition is set up in the multi-regional context.

It is the concept of the integration pole (Boudeville 1971) which is the most interesting contribution of the growth pole theory to the concept of the superimposition. The integration pole is a growth pole which integrates two formerly independent polarized systems as a result of the abolishment of a political boundary.

2.2.3. The concepts of the superimposition and of the border region

What the context of the system of statically analysed regions, separated by informal or soft formal spatial barriers, implies is the bare joint rather than the superimposition. The latter concept implies a dynamic approach and (hard) formal spatial barriers. In this context, the concept of border region is useful.

The related literature (Klemencić 1976; Pak 1977, 1980; House 1982; Strassoldo and Zotti 1982; Hansen 1983) suggests that the concept of border region is based on the assumption that: (1) a hard formal boundary exists; (2) this boundary serves as both a spatial barrier and an economic attractor, i.e. a growth pole, and this implies that (3) there are noticeable economic disparities across the boundary and (4) that the boundary is not very hard, i.e. it is an open boundary; the latter formulation implies that (5) the economic disparities across the border are not too large.

The concept of border region refers to the dialectic of co-operation and conflict (Strassoldo and Zotti 1982). To be recognized as a region, any border region has to be as highly interrelated functionally as to form a unity despite the existence of the border that divides it formally. In this way, the border region is to be considered in terms of the core rather than the periphery.

2.3. The theory of the socio-economic region: a critique

The theory of the superimposed region cannot abstract from the nature of the socio-economic region. In the prevailing syntheses of the discussion on the nature of region, the basic divergencies concerning this nature have rarely, if ever, been sought for on the philosophical level. Rykiel (1987b), however, indicated that those divergencies stem from the basic philosophical background of individual explanatory patterns. The explanatory pattern is a generalization (an ideal type) of the de facto way in which a given discipline in a given time is made by a certain group of scientists. As such the explanatory pattern is a generalization for the paradigms which is a special case of the former. Four explanatory patterns can be identified in the regionalization context. Out of many detailed characteristics of the explanatory patterns, two are provided herein, i.e. (1) the question of the objective existence of the region, being a reflection of the universalities dispute in philosophy, and (2) the relations between the social and the economic within the socio-economic region.

The classical explanatory pattern, as based on neo-Kantism, views the "natural geographical region" as a "thing in itself". Because of its acceptance of conceptual nominalism, this explanatory pattern views regions as individual exceptional invariable entities to which individual exceptional names are related. According to environmental determinism, on which this explanatory pattern is based, the social is closely interrelated to the economic and the two (culture) are subordinated to nature.

The dogmatic explanatory pattern, as based on dogmatic "marxism", or (neo-)Stalinism, accepts the extreme conceptual realism by assuming that regions are clearly and unequivocally separable "objects". Physical regions and economic regions are viewed as two independent categories to be investigated by unrelated geographical disciplines, i.e. physical and "economic" geography, respectively. The socio-economic region is reduced to the economic region.

The positivist explanatory pattern, based on neo-positivism, accepts conceptualism, according to which regions do not exist objectively but their notions. The ontological question of the nature of region is reduced to the methodological question of regionalization which is viewed as an aim-oriented construction rather than a discover. Natural and socio-economic regions are conceptually convergent. The economic and the social are analysed as two independent cases of regions which can be identified among many other cases of the "region in general".

The dialectical explanatory pattern, as based on structural marxism, accepts the moderate conceptual realism by assuming that regions do exist objectively, even though they are highly interrelated. The region exists as far as concrete functioning interrelated regions do. The discrimination between regional form and regional containment is essential, of which the former is more inert. The socio-economic region contains two dialectically interrelated parts, i.e. the social and the economic, of which the former is more inert. The socio-economic region is a historical entity which emerges in a certain stage of socio-economic development.

It is on the latter explanatory pattern that the concept of the superimposed region is based.

2.4. The concepts of socio-economic development and social integration

Four consistent definitions of development can be identified. In physics, development is a change in characteristics of a system aimed at an increase in its complexity, or the increase in the structural heterogeneity of the system. The increase in negentropy of the system is a measure of its development. In cybernetics, as a measure of development, the increase in the informative capacity or the system's requirement of information and its regulatory effect is taken. A differentiation of the system which involve an increase in its cohesion rather than decay is an indicator of the development process. Development may, therefore, be defined as a functional differentiation of a system which involves its durability and stability. In biology, development is defined as adaptability. The complexity of the setting to which a given system can adapt is a measure of its development (Cackowski 1986). Generally, development may be defined as the emerging of contradictions in the functioning of a system, the overcoming of those contradictions being defined as progress (Rykiel 1982). Since development implies negentropy, socio-economic development implies the growth in the integration of the system.

In socio-spatial sciences, integration is understood as a process of the creation of stable totalities (social systems), capable for further development, out of the elements which existed separately before (Rykiel 1985b). Among the operations that condition the integration process, two phases may be distinguished, i.e. (1) an initial change (or a creative relation) and (2) compensatory changes, i.e. the adaptation process of other elements or the institutionalization of the relationships.

Social integration is understood as an amalgamation and harmonization of the elements of a community in terms of the intensity and frequency of social contacts between its members as well as of the acceptance of common systems of values, norms and evaluations within it.

Two basic approaches to the investigation of social integration may be identified, i.e. non-spatial and spatial, to which some authors refer to as to the social-class and the territorial aspects of integration, respectively (Wróbel 1980). In the non-spatial approach, integration of social groups is examined within a territorial community while in the spatial approach integration of the respective communities is analysed. The latter approach may be discussed in terms of the re-orientation of the spatial relationship pattern.

3. TOWARDS THE THEORY

3.1. The development of the superimposed region

A basic assumption of the developing theory of the superimposed region is that it is a historical entity, i.e. one which emerges at a certain stage of the historical process. Two basic types of superimposed regions may be distinguished, i.e. formal and informal, as based on the concepts of formal and informal spatial barriers, respectively. Each of the two has a different path of development.

It seems useful to consider the superimposed region as a historical entity in the core-periphery context. In this context, let us begin with the consideration of the notion of the peripheral area. This may be defined as that part of a territorial socio-economic system which is located outside the zone of the highest socio-economic activity of the system. Low and centrifugally diminishing indices of development are thus characteristic of the peripheral area (Zagożdżon 1980).

The concept of the peripheral area is based on the assumption that a single socio-economic system is considered within which the core and the periphery may be identified. In the case of a system of such systems, e.g. a regional system, the notion of the bare joint of the subsystems, i.e. of individual regions, is to be considered or that of the interstitial placement of the respective regional centres. In this context, the bare-joint area may be defined as one in which two or more regions join each other, i.e. in which the respective regional boundaries confluence. The bare-joint area is a simple sum of adjacent peripheral areas of neighbouring regions. Those regions, and

hence also sub-areas of the bare-joint/interstitial area, are divided by soft formal or informal spatial barriers. Because of few interactions between them, those sub-areas are said to bare join each other rather than be interrelated.

If a hard formal spatial barrier, i.e. a boundary, is added to this consideration, a border area appears. Of the border area, an asymmetry of its sub-areas is characteristic. Each of the border sub-areas is clearly defined by the border line while on the opposite side it declines smoothly. The border area, understood in this way, is characteristic of a specific historical context, i.e. a considerable formalization of the boundary, as interrelated to the specific stage of the socio-economic development. The considerable formalization of the border is interrelated to the relatively low interconnections across the boundary.

With socio-economic development, the boundary may develop as an economic attractor rather than a barrier. This development is responsible for the growing integration across the boundary, resulting in the emergence of a border region. The border region may be said to develop if interrelationships within the considered border area are strong enough. This area, even though divided by the boundary, forms a unity from the point of view of the considered relationships. This implies not very high formalization of the boundary. Generally, however, the notion of the border region applies to a formal spatial barrier and integration across the barrier. In this way, the border region, originated from a peripheral entity (border area), develops on as a core entity.

The concept of the superimposed region is related to that of socio-economic development or institutionalization. If the former, the informal superimposed region appears; if the latter, the formal superimposed region develops. The informal superimposed region results from the intensification of the relationships between the sub-areas of the bare-joint area. The region being developed includes areas located on the opposite sides of informal or soft formal spatial barriers which are being "eroded" with the process of integration rather than disappears at once. To the mechanism for the development of the informal superimposed region, the generalizations developed within the central place theory apply, although the bare-joint area and the informal superimposed region are then analysed in terms of the interstitial area and the interstitial region, respectively.

The formal superimposed region, on the contrary, results from a formal unification of the border region, i.e. from the abandonment of the boundary.

In fact, however, the ex-boundary still works as a spatial barrier. The concept of the formal superimposed region is based, on the one hand, on the institutionalization of the already achieved integration level and, on the other hand, on the notion of the integration as a process. Since integration is a process rather than an event, it must be unproportionate, i.e. it does not apply to all elements of spheres at the same time. The time lag between the development of the regional containment and the respective regional form is essential for the changes in the socio-economic region in general (Dziewoński 1967) and for the nature and the development of the formal superimposed regions in particular. The integration of the border region, and then the superimposed region, is propelled by economic integration while social and psycho-social structures, including human consciousness, as more inert, lag behind. While the level of economic integration suggests that a given superimposed region may be already considered as a region, in terms of the lagged social integration the formally abandoned boundaries still exist as spatial barriers. It is then in regional consciousness that the most traditional regional patterns remain.

With the integration process, both the formal and the informal superimposed regions are transformed into the integrated region. The latter is to be understood as one in which the erosion of the former spatial barriers have been completed, i.e. in which no boundary effect can already be noted (Fig. 1).

It is worth noting here that the theory of the superimposed region is based on two main concepts, i.e. (1) that of the socio-economic region, i.e. the category that cannot be reduced to that of the economic region, (2) that of unproportionate development, which implies that development diffuses from an innovation centre and that social development follows, even though not mechanistically, economic development.

3.2. The mechanism for the integration of the superimposed region

As was already mentioned, the spatial approach to the integration process can be discussed in terms of the re-orientation of the spatial relationship pattern. This process may be said to begin with the investment process which is responsible for the development of the labour market and the service market whereas the former is essential for the development of the respective regional settlement system. Services, especially the spatially fixed services, are considerably influenced by the existent political boundaries. The expansion of

the labour market as well as the spatial service market involve permanent, periodical and daily human migrations. The growth in economic relationships and migrations influence the change in the pattern of transport links. Migrations involve the intensification of social contacts. New information channels are formed which contribute to the growth in migration in the new regional pattern. Migrations are responsible for the differentiation of the regional community and this fact involves inter-group dislikes and antipathies which even more differentiate the community. The social differentiation affects, together with the existing political boundaries, regional consciousness. The community differentiation and the intensification of the social contacts result in the growth of tolerance. The latter involves acceptance which influences regional consciousness. Both acceptance and regional consciousness involves social integration (Fig. 2).

Most generally, four main elements of the social integration of the superimposed region may be identified: (1) the development of the regional labour market, (2) human migrations and the related re-orientation of the spatial relationship pattern, (3) the development of social contacts and relationships, and (4) changes in regional consciousness.

Basic factors of the control of the integration of the superimposed regions can also be identified. Most generally, the single factor is human migration. More specifically, however, these are: (1) industrial expansion and the related human migrations; (2) the development of social infrastructure; (3) the development of communal transport systems; (4) the democratization of space, and (5) the model and the role of the territorial administrative divisions.

3.3. The typology of superimposed regions

The distinction between formal and informal superimposed regions may be recognized as an ideal typology, where ideal types are not related conceptually to any real thing or phenomenon (Domański 1964). As opposite to that typology, five basic empirical types of superimposed regions may be distinguished: (1) formal, (2) informal, (3) intermediate, (4) mixed, and (5) complex.

The formal superimposed region is one which contains spatial barriers originating from the nineteenth- or twentieth-century hard formal barriers, i.e. state boundaries. The Katowice region, Poland, with its spatial barriers following the nineteenth-century state boundaries, is the most detailed analysed region of this type (Hartshorne 1933; Rykiel 1981, 1985a,b, 1987b).

The informal superimposed region is one which contains informal or soft formal spatial barriers of three basic classes: (1) natural barriers which have hardly ever been followed by political boundaries; (2) intra-national political boundaries prior to the industrial revolution; and (3) contemporary intra-national soft political boundaries. The Warsaw region, Poland, with the Vistula river informal spatial barrier, is a case of the first of the above mentioned classes. The history of the erosion of the natural barrier can be analysed in terms of the history of the development of civil engineering. The Toulouse region, France, with its spatial barriers following the pre-revolutionary provincial boundaries, can be taken as a case of the second class. The Basque-periphery region, Spain, with its spatial barriers following the contemporary soft formal boundaries, is a case of the third class (Rykiel 1981).

The intermediate superimposed region is one which contains contemporary or historical soft formal spatial barriers, predominantly the intra-national political boundaries of autonomous units. Those boundaries have been formal spatial barriers only for the spatially fixed relations while they have exercised hardly any boundary effect for the spatially flexible relations. The Leipzig/Halle region, GDR, with its spatial barriers following the political boundaries of individual historical German states, falls in this type (Rykiel 1987a).

The mixed superimposed region is one which includes spatial barriers of different types. The existence of many spatial barriers of different types is characteristic of this type of region. The Ostrava region, Czechoslovakia, and the Lyon region, France, are but two cases of this type.

The complex superimposed region is one which contains one or more spatial barriers of a complex origin, e.g. an informal spatial barrier which had been formalized and then have been de-formalized to be eroded. As opposite to the mixed superimposed region, different origins apply to the same barrier. The Belgrade region, Yugoslavia, and the Messina/Reggio di Calabria region, Italy, are representative of this type.

4. Conclusions

It was indicated in this paper that the superimposed region is a historical entity. As such it is related to the development (i.e. accumulation and erosion) of spatial barriers as well as to the lag of social development in relation to economic development. What the concept of the superimposed region

implies is to give up the rather naive, even though optimistic, belief in mechanistic and rapid social integration in historically new regions. Instead, integration is viewed as a dialectical process on the historical scale, which includes contradictions, conflicts and equivocalities.

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Figure 1. The superimposed region as a historical entity

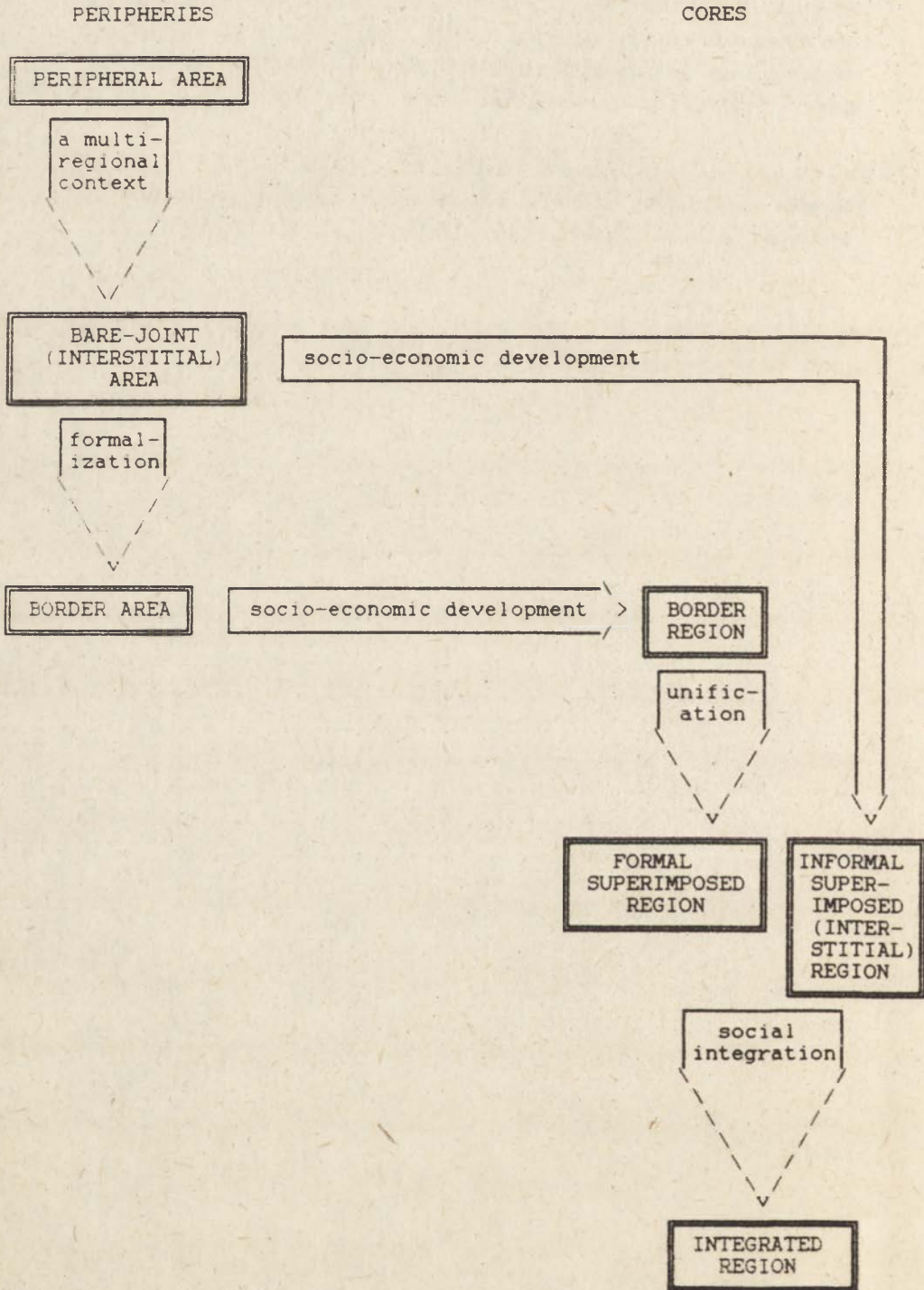
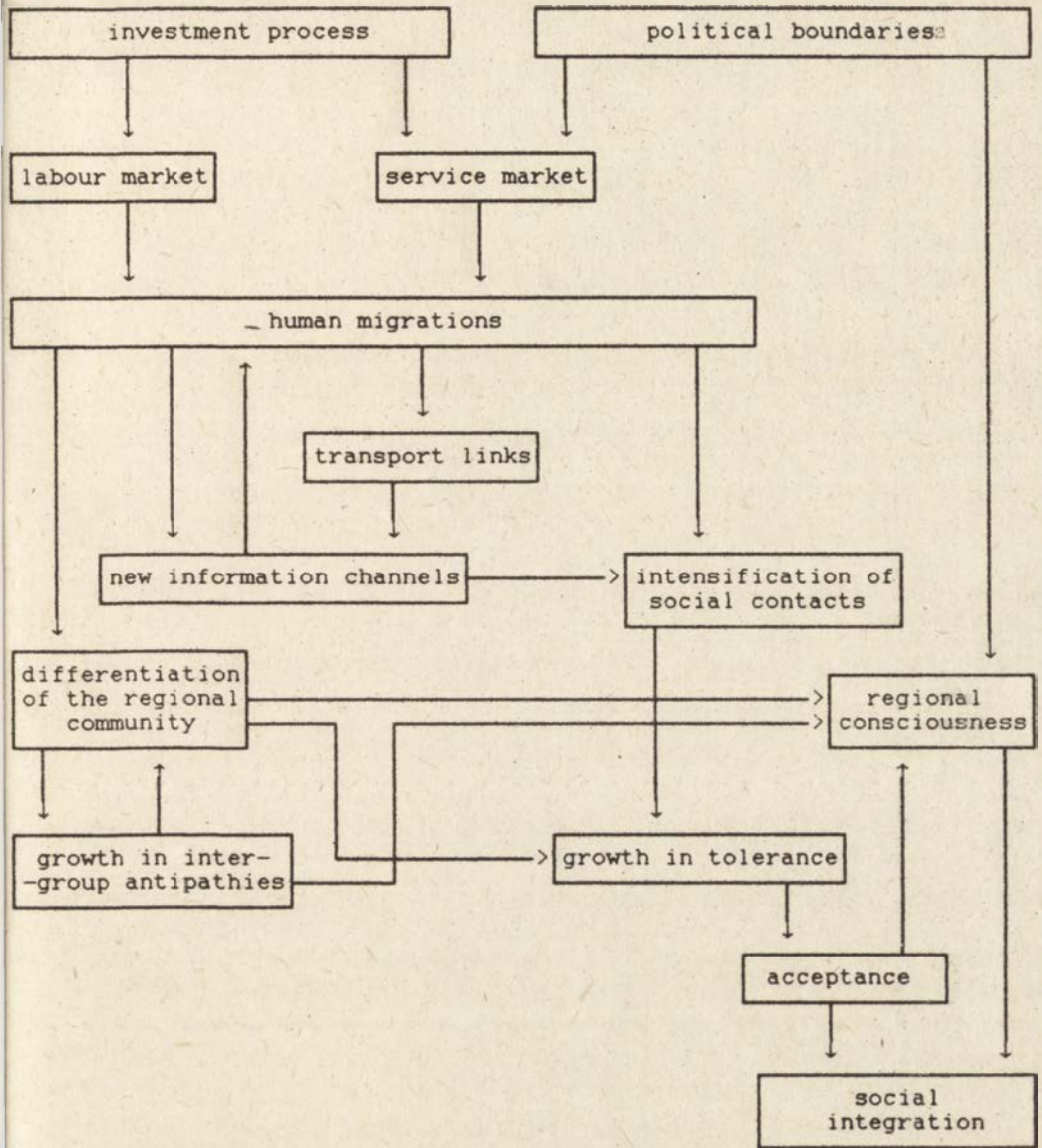


Figure 2. Social integration of the superimposed region



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ROADS NODALITIES AND CENTRAL PLACES.
SPATIAL CONCORDANCES AND DISCORDANCES IN AN ADRIATIC REGION

1. After the fall of the Kingdom of the Two Sicilies and the decay of the Church's State with the expedition of the Mille led by Garibaldi and the Piedmontese troops, in 1860 there occurred the unification, under a single political power, on the Adriatic front of the Italian peninsula which for long centuries had been divided by the Tronto river, on which valley's furrow and on its affluent Castellano torrent, there was the so called border of "Acqua-santa".

Consequently areas that once were peripheric in the respective states, - the present administrative regions with ordinary statute The Marches, in the north, and Abruzzo, in the south, ended assuming a condition of centrality on a physical plane and considerable potentialities of growth as rings of a bond of economic interests and social solidarity that the new Italian State had to create to join with enduring ties the South to the North of its territory. But the conditions of the two areas were very different: while the Marchigiana area had known, during the Renaissance, a strong political and economic growth, particularly in the Duchy of Urbino, which re-occurred in the XVIII century under the propulsive push of Ancona's port and Senigallia's fair, able to mobilize the resources of the Marchigiana area country, on the contrary, the Abruzzese area seemed to legalize a large part of the territory to the stock-raising Von Thünen model that was centred on Naples as the capital of an isolate state.

The following decades after the Italian Unity had seen the experiment of all the series of regional politics possible, also the change of general trends and material instruments, the rings of the above mentioned bond and to attenuate the lack of balance between the two areas that, from many points of view, are considered illustrative of the still contrasting reality. Nevertheless, since the first seventy years reference terms and valuation of the conditions for the development (Mori 1970) have changed and also those relative to the modality of the development that begins to seem an isolated case of balanced growth (Landini 1972), relations with regional neighbouring spaces that seem to join thanks to Abruzzo which has the role of hindcasting (Landini 1982).

This hindcasting, under the more and more intense relations with Latium, is tending to configure as a triple junction now between the central Tyrrhenian area and the Adriatic ones in the north and in the south of Abruzzo, and to behave as an active junction on that "Adriatic road to the development" whose originality resides in numerous local episodes of economic growth, called "localismi", that, joining each other in the territory, brought the productive reticular structures of little and middle industries that in any case seem to support, and in an other case to anticipate, similar and homologous structures of central places.

But the physical substratum and the long history of population, particularly the settlement at the time of the Unity of Italy, all this has had a repercussion on the organization and dynamics of the territory whose administration, among other things, does not only answer to casual results about the logic of the Western Countries' Market and those ones aimed by a State Central Government, but also interventions of: a) regional government, b) provincial and municipal administrations, c) several territorial bodies in which local power is realized today (Comunità Montane = Mountain communities; Distretti Scolastici = School districts; Unità Locali Socio-sanitarie = Local social-medical units). A consequence of great interest is the weak spatial concordance between the road nodalities and central localities. A very singular case in a region that in 1860 had distinguished itself by the absence of a plan for transportation means whose realization in the next decades should have guided the emergence of a homologous urban structure even simple, but strong and orientated by an urban centre and also by the impulse "to be a territory" that administrative regions have achieved with the accomplishment in the last twenty years of constitutional laws concerning the regions with the ordinary statute.

2. The physical characters of Abruzzo are not unitary: on the contrary, they refute the juxtaposition about the administration of two distinct natural areas. One corresponds to the calcareous central Appenines, which here presents its greatest transversal width with several bundles of subparallel chains among them (Fig. 1). This area recalls Umbria very well, even by the country's character of several basins between the mountains interposed among the steep reliefs - several summits reach 3000 m and the Gran Sasso d'Italia mountain can boast of the only glacier on the Italian peninsula - break the monotony of the long, dry mountainous ridge lines, in spite of considerable precipitations (between 800 and 1500 mm every year according to side exposure) for the karst phenomena diffusion (Massimi, Mazzara 1979; Segre 1948).

Besides, these basins have set bounds to the settlement which were particularly severe in the period (1860-1940), of the reconversion of the economic asset from pastoral to agricultural, caused by progressively placing the cultivation in Latium and in Apulia of grazing grounds which were availed of in the past by Abruzzo's sheep-raising traditionally transhumant on a wide scale (Franciosa 1951) (1) and justified during the most glorious period of steady settlements (Bevilacqua 1952) up to 1507 m (Roccacalscio, in Aquila's "provincia", was the highest of the inhabited places, but is now depopulated) and with elevated an demographic density in the official residential space.

The other natural area, that recalls Marche's physical structure, is that of the hilly Adriatic out-country, that leads across the valley of the Tronto river, on the north, and the Trigno river, on the south: the ridges of the hills, branching out as buttresses from the Appennine chains, tend to develop, according to perpendicular orientations, to the coast-line, separated from them by the cuts of several water-courses, that are like the Marchigiani ones for their tendency to inigrate on their hydrographical right (Castiglioni 1935; Crescenti 1972) and to conserve the alluvial terraces on their left, where these have not been hit by erosion with badlands.

There are, nevertheless, considerable differences between the Marche hills and the Abruzzo ones. While the former presents unitary characters that extend to lithologic substratum and geologic events, the latter presents three distinct sections, substantially different in an analysis it is not limited to value only orographic lines: in the north, between the Tronto river and the Pescara river, the hills are modelled on sandstone in the most inner part and on clay facing the coast; in the middle, between the Pescara river and the

Sangro river, there is the Frentano level ground (Piano Frentano an old sea level sounding-depth altered by continental erosion) subdivided by deep cliffs that extend from Maiella's foot to the sea, where they join a high coastal cliff; on the south, between the Sangro river and the Trigno river, real hills reappear again, but not in regular succession like the northern section, in that the allochthonous composition of their substratum (they are from old submarine landslides and gravitational flows), appears, nowadays, with a large diffusion of landslips that often menace settlements, mostly placed on calcareous rocks disseminated in a chaotic way in the sea of clayey formation (Massimi 1980a,b). These brief indications and delimitations are enough to frame the context of the so called coastal Abruzzo, whose economy on the threshold of the Unity of Italy was conditioned by a series of obstacles that would be too long to enumerate.

The principal ones consisted in subduing, to transhumant sheeprearing in the region, vast grazing areas along the selva level stretch of coast between the Tronto river and the Pescara river (the "stucchi" that depended on "doganella" in Atri, Di Antonio 1978); in the net of the droves (large strips of grazing land were reserved for flocks of transhumant sheep towards the end of the region) that directly took away (they were larger than 100 m) or indirectly (with reserved stop areas) different lands for the agriculture; for lack of roads to pass over several water courses (the opposite banks of the river were reached by rafts called "scafe"); in the marches that made alluvial plains unhealthy (the valleys' terminal places of the Sangro and the Trigno rivers have fully been reclaimed after the last conflict); for want of organized ports for the export of a possible agricultural surplus (Felice 1983).

In particular there were serious coastal conditions, because in spite of some isolated attempts at exploitation (for example, in the communes of Castellammare Adriatico and Pescara, afterward unified when Pescara's "provincia" was founded, some coastal ponds were reclaimed), the coast line appeared desolate and depopulated as at the beginning of the XIX century, when "to prevent smuggling our pragmatic viceroys did not allow people to live on the beaches" (Galanti 1973, vol. 2, 499).

3. The first census after the unification (1861) indicated the demographic weight in Abruzzo 3.87% of the total population in comparison with an extension of the territorial surface equivalent to 3.6% of the corresponding total national (the information refers to the population living in the present bor-

ders), that would progressively decrease in subsequent observations: only 2.15% of the national total in 1981, and this shows that now the Abruzzo counts in terms of population, 55% as counted in 1861. In part, the above-mentioned data form a statical illusion, as has been previously said the Abruzzo population diffusely passed over the residential spaces contemplated by the census; but in part, they mean as symptomatic of a strong demographic pressure flowed for over a century into a strong exodus up to an inversion of the tendency that occurred after 1971 (Di Donato 1980; Gentileschi, Simoncelli 1983; Massimi 1978; Spinelli 1984).

The established tissue in the present Abruzzo region distributed the above mentioned 3.87% of the population living in Italy in accordance with two fundamental typologies: on the inland area there predominated compact settlements arranged on the edge of inland basins and of several karst polja, while all the series of little top settlements, with the inevitable castle dominating, were equispaced in the narrow valleys that link up the basins, or on the ridges interposed among the less extensive polja. In the system of permanent residences were placed side by side the temporary ones, well-known in literature under the name of "Pagliare" (Almagia 1949; some "pagliare" are still utilized).

In the maritime-area predominated interfluvial centres in compact plant too (as herring bone in the north of the Sangro river, as spiral between the Sangro river and the Trigno river): in many cases with them could be seen several "ville" or farmhouses, small inhabited groups that, particularly on the outskirts of Teramo and of Ortona, contributed to thicken the plan in wider administrative units. If it is reported on a present administrative map the demographic data of the period (always referring to 1861), eventually adding some information concerning the space connection of local power and trade functions - assured by a rich calendar of fairs and weekly markets mostly situated in places recognized as centres of administrative extramunicipal functions (with the exception of Pescara) - one is in a position to individualize the system of central localities that in the following year had to support the impact of the transport revolution (Figs 2, 3).

To specify that exactly the needs of road conditions compelled the articulation of the space of local power acting as geographic barriers (mounts and deep river-beds) interposed to the mobility of a population that, most times, walked behind its packanimals, and these needs imposed a system of close meshes

even if nodal points had little to offer, beyond the weekly markets and imposed administrative services.

In short: in pre-unitary Abruzzo there emerged as a basis the three chief towns of the province (L'Aquila, Teramo, and Chieti) that controlled ten "districts" from which derived the terminal nodes called "circondari", about sixty. Then, towards the "circondari" converged official dependence lines - that coincided with the real barriers mentioned - of lesser administrative units named "comuni" (communes). In all some hundreds of communes (the total number has substantially remained unvaried, within present limits, in spite of the "turbulence" of regional administrative events for which see Scotoni 1984) were united with cantonal districts by the political will of the central Government that from remote Naples accentuated with inertness or with law-making acts the weight of the orographic and hydrographical conditionings.

Near the end of the XIX century the aggregation in districts of the space called Abruzzi (plural of Abruzzo), seemed almost to lay stress on the multiplicity of subjected realities, and that shares with the near Molise the name of "region" in the royal statistics, seemed nearly unchanged beyond freaks of administrative languages that now is calling "circondari" the old "districts" and "mandamenti" those which were previously called "circondari".

But things have changed. On the coast line, where 18 inhabited centres mark the reconquest of interface land-sea after tens of centuries: "some grew where there was no life, others developed as the halving (gemination) of small towns that mostly covered a dominant height" (Ortolani 1956, p. 144). On the back hills, where especially in the north of the Pescara river, the metayage expansion, mediated by the near Marche, gets a scattered settlement, that in many cases gains a predominant weight, still noticed and significant for the present development of "diffused" industry (typical, in this sense, the small Val Vibrata). On the valley bottom, where arise the new inhabited places that repeat, but in more modest ways, the models of urban settlement that have made a name for themselves on the coastline: the most important examples are in the valleys of Vomano (ex. Castelnuovo al Vomano) and of Pescara (ex. Piano D'Orta). On carbonatic mountains, where sheep-rearing shrinks and the considerable demographic pressure applied to explore mining potentialities yielding sometimes disappointing results (lignite of Gran Sasso, peat of Castel di Sangro) and sometimes positive ones (especially in the mining district of North Maiella that will supply asphalt rocks), and where the stubborn farmers persisted in cultivating vineyards, thanks to a particular contract of emphyteusis, heaps

of stones exposed to the sun. On the basin of Fucino lake, the hunger of land and the possibility of occupation assure popular support for the reclamation of the lake. But above all you see the signs of change at the mouth of the Pescara river where three administrative units - Castellammare Adriatico, Pescara and San Silvestro (this commune was largely absorbed by Pescara in 1879) - experience such a demographic expansion and such a proliferation of trade and industrial enterprises (Colapietra 1980a,b; Gorgoni Lanzetta 1977) to vivify the only city that in fact imposes itself as support of a new centrality (Table 1; Fig. 4).

In fact, cantonal aggregates have lost a part of their internal cohesion in consequence of the construction of railway and road lines. The positional agricultural revenue is no more the inverse function of the distance (conditions being equal) from the market of the administrative chief town, but from the complex road knots - the goods yard - that, being the convergence and divergence places for the flux of goods and people, tend in short to burden the trade and industrial functions (food industries and building materials play the leading role) (2).

The aptitude for the goods yards to evolve into new central places is therefore limited because the railway lines do not draw a grid with circuits inside Abruzzo and that the tracings have followed two basic standards, except for two cases in general: the "sangritana" railway in lower and middle Sangro valley, and the narrow - gauge railway Penne-Pescara in Tavo valley.

The first standard explained by the Central Government was that they only asked to pass through the regional territory to link up: a) with a perimetrical line the Adriatic coast line to the Po valley; b) the chief town, Rome, to the Adriatic line with a very short route, compatible with the technologies of the time; and c) the big intermountainous basins of the Appennini from Umbria to Molise.

The second standard was explained by the local power that wanted to adapt the railway tracings to the pre-existent hierarchic grids (Fig. 3) but within the, rather narrow bounds imposed by the first standard and the physical environmental conditionings. The most important cases of victorious local power were the connection of Teramo to the Adriatic line with a ramification (now almost unused) and the deviation towards Palena of the Sulmona-Castel di Sangro line.

Yet, attention please! the railway lines were neither built from one day to another nor contemporaneously (3).

The building of new railway lines imposed new restrictions: the existing lines conditioned the location of new ones in planning and strengthened the conditions of centrality already obtained. The map (Fig. 3) illustrates the spatial relationship between traditional places (the chief town of administrative aggregations: "province", "circondari", "mandamenti") and railway lines at the beginning of this century: many old towns remain isolated. Significant examples are Penne, Campli, Bucchianico, Casoli, Atessa and Gissi on hilly coastal area; Barisciano and Capestrano on the south-west side of Gran Sasso mountain; Scanno in Sagittario valley; Castelvecchio Subequo on Subequano basin; Trasacco, Gioia dei Marsi and Pescina on the southern part of Fucino basin.

Other central locations are forced to double existing inhabited places in shore-belt and in the valleys with different results.

Where there is a flat and unbroken coastal selvage (north of the Foro river) and the administrative divisions allow for the growth and expansion of the built-up areas, railway stations attract people, investments by entrepreneurs, and the administrative functions of the old central places that generated them; where the coastal areas are not flat and homogeneous (south of the Foro river) the railroad stations are not able to promote growth and to exploit all of their potential. There was even one case (the station of Tollo-Canosa Sannita) of a goods yard unable to generate although a modest-sized centre. Only tourism in recent years (beginning from 1970) seems to have changed the situation, causing however the resorts to take on a secondary importance rather than that of central ones (Marina di San Vito, Fossacesia Marina, Torino di Sangro Marina, Lido di Casalbordino).

In valley locations the railway stations generally showed a moderate capacity of promoting new centrality. A significant exception is made by the railway station of San Valentino-Caramanico, now Scafa, whose success (in administrative terms can be attributed to the forming of an independent commune in 1948), it can also be explained by two other factors: the closeness of the asphalt mines on the north side of the Maiella mountain (which was very active about 1930) and of the availability of hydroelectric energy. Both factors combined were fundamental in the creation of an industrial centre in Scafa, where there are cement and asphalt industries as well as a chemical industry located in the vicinity (near the village of Piano d'Orta). The citation of hydroelec-

tric energy would merit a more detailed discussion because of its great importance that we retain fundamental, jointly to the diversified and complex new roads nodalities, in the alteration or changing of cantonal formations, but we would risk going off the point.

Railroad stations proved to be very efficient with regards to transportation linkages of central places up to the first quarter of this century when road transportation systems began competing with the railroad. At first, the road transportation systems were very weak, but became still more efficient than the railroad linkages even in similar directrices.

A brief look at the demographic results of the 1931 census is a good opportunity for the pin-pointing of the situation at the threshold of a new revolution. There emerges some particularly interesting demographic information about the township of Pescara (which had in 1927 just become the chief town of the omonymous province) that ranks second on the regional scale in terms of size. It is also worthwhile pointing out the demographic decrease of quite a few of townships that in the past were growing on a cantonal scale and which have found themselves isolated from railway lines (Table 1; Figs 3,5,6).

The events that took place in the following decades and up to the present were conditioned by the numerous forces and factors that these areas had been subjected to or is a result of them. At the end of World War II, the opening up of one of the poorest areas of the Italian Peninsula to emigration, after the fascist semiclosed emigration policy which had lasted for twenty years, gave rise to a weighty exodus. The destinations were Latin America, Canada, then the coal mines of western Europe and finally Northern Italy and Rome. In order to block the flow of emigration the government created public work projects such as hydroelectric generating stations, roads and reafforestation programs. These projects were often not part of a large coordinated plan, but they were numerous and important enough to transfer large numbers of people from primary sectors to the secondary sectors of economy, even if they were not in some cases very productive or useful.

Around 1960's Abruzzo was seen as a problematic area because the structure and the evolutionary tendencies of the land were in serious disagreement or contradiction with the destined use of the land (Ortolani 1964), with the housing programs (Riccardi 1950), with the demographic tendencies (Fondi 1970; Grumelli 1961). The difficulty can be measured by examining the reduction in the demographic importance of the region as compared to the national amount (2.69% in 1951; 2.38 in 1961; 2.16 in 1971); all this an outcome of the above mention-

ed massive emigration, and of the following changing of age structure in Abruzzo.

In fact, while the mountains and the hills were becoming less populated, the coastal strip between the Tronto and Foro rivers were becoming heavily urbanized, with rows of buildings set up 4 or 5 strings between the shoreline and the foot of the hills. The basic thrust of this building or urbanization boom can be attributed, without a doubt, to tourism, which however also took place because of ortolan agriculture and initiatives industrial and commercial (the most widespread industries in the area are the clothing and furniture industries). Pescara confirms itself as an interregional centre in the territory of region (Massimi 1977; Tagliacarne 1968). It is the only city in Abruzzo that can be truly considered to be a major urban centre, thanks to the port and airport activities which are able to generate an explosive demographic growth in a region that is suffering a demographic regression.

	1951	1961	1971
Pescara	65 466	87 436	122 470 inhabitants
Abruzzo	1 277 207	1 206 266	1 167 000 "

This urban centre has been able to place itself as leader in the area as far as urban structure and organization are concerned, according to rank-size rule or RSR standards (Cori, Cortesi, Formentini 1976; Massimi 1980a,b) (Table 1).

RSR states "that if the cities are rank-ordered from 1 (the largest) to n (the smallest) then the population of the city ranked k can be derived from the formula $p_k = p_1/k$ (where p_k is the population of city k and p_1 is the population of the largest city... In empirical studies, the rule is usually estimated with the use of regression analysis, fitting the equation $\log p_k = \log p_1 - b \log k$; the larger the value of b the larger the city p_1 relative to all others" (Johnston 1986, p. 386-387). If $b = 1$ the urban network is considered well-balanced. We have computed b under two conditions: always b comes up to 1:

	1951	1961	1971	1981
1)	0.691	0.776	0.863	0.873
2)	0.734	0.802	0.907	0.978

1) $n = 5,000$ inhabitants; 2) 250 communes (in Abruzzo there are 305 communes).

By the formal structure of RSR with statistical data by administrative boundaries may be found to be misleading (Landini and Massimi 1984), and there are no convincing explanations for the size of b. So we consider the RSR analysis significant, but not conclusive.

4. Beginning in 1964 different methods and techniques have been used (Landini 1972, 1976; Leone 1970, 1977; Paci et al. 1964; Piroddi 1974; Somea 1973, 1987) to analyze intermediate districts and central places in the region, even if sometimes there are missing guidelines, information and intellectual framework, except for recent times (Landini, Massimi 1984; Landini 1987).

One must remember that because of the lack of time some research materials cannot be mentioned (for more detailed bibliographic information: Santucci 1979). They mostly consider delays, which impede economic development, and weaknesses in the urban structure (Bartaletti 1984; Gasperoni 1970; Da Pozzo 1980), but being based on retrospective information almost always referring to historical analytical interpretations of the existing geographical layout and not evaluating properly the present plan for the future (of the few exception we mention Landini 1972). So we point out factors that were at first valued in general in negative terms, but that have instead turned out to be so positive as to be considered determining factors for recent economic growth, for the spatial diffusion of industry and services, for the renewal of the housing situation and settling plans. Features that are innovative, in our opinion, of the diffused city and of the reticular centrality, compared to that of the agglomerated city of the traditional geographic structures that in Abruzzo survive in several intermountain valleys.

The enormous development of ordinary roads (that is state, provincial and township roads) in spite of incongruities in planning and slowness in construction, has helped to place Abruzzo in one of the first positions in Italy (1984: 1161 Km/100 000 inhabitants in Abruzzo; 525 Km/100 000 inhabitants in Italy), breaking traditional cantonal ordering. In addition, highways and super roads ways that basically privileged directrices oriented according to longitude, have reoriented the spatial trend of development in such way as to be able to recuperate internal areas and insert them in an active territorial transition towards Rome. Naturally there emerges the risk that Abruzzo Aquilano would eventually evolve towards a peripheral condition of suburban areas with regard to the Thyrrhanian metropolitan centres: an alternation of areas used as parks (Parco Nazionale d'Abruzzo, Sirente Park, Gran Sasso park

d'Italia's) and zones used intensively for tourism (Altopiani Maggiori, Altopiano delle Rocche, Monti Carseolani and Simbruini) that because of their discontinuity (the lower level valley basins of the mountain areas) just allow small urban microsystems that are weakly linked to each other to survive. Besides, it is important to note the abolition of share-cropping that had reached a certain level of importance in the past decades between the Tronto river, and the Pescara river. Analyzed and viewed only in terms of change in the agrarian structure and legislative acts that have in reality favoured the expansion of industry: in the location of new firms prevailed "environmental" economics (the absence or tolerance of municipal laws in building and of checks in connection with industrial wastes; the possibility of home industries; the availability of structures to be changed or altered for industrial use; a dense road network) to those of agglomeration. The most significant cases are on Val Vibrata and in the Fino valley. It is worthy of note that the model of growth has a tendency to repeat itself, in different environmental conditions and situations, for imitative effect (the Foro valley and Sinello valley are the most recent examples).

Exogenous industry plays an active role along the Abruzzo coast, attracted to the area because of the availability of methane gas (the industrial area of San Salvo) and of negotiating and bargaining between political parties, unions and economic forces (industrial areas in Val di Sangro). Elsewhere (Val Pescara, Sulmona, L'Aquila) the exogenous initiatives have not always been successful and have not been able to attract local entrepreneurs and investments (Cori 1980; Salvatori 1977).

In conclusive terms, the problem we have discussed explains the demand for occupational polarization as well as tertiary polarization that would direct the flow of people, investments and services with relation to spatial patterns, the means of communication and their nodalities. The most recent studies (Cresa 1987; Somea 1987) have evidenced a notable discordance between occupational and scholastic poles, confirmed by the number of commuters (information refers to 1981 statistics) and tertiary ones, for example in the Val Vibrata area, in the Fino valley, and in the strip at the foot of the Maiella mountain.

The above mentioned discordance is interpreted, in our opinion, as small-break between urban and productive structures. In addition, in the region, the distinction between levels and types of services will allow an additional re-

relation of spatial discordances in the roles of local centralities and the configuration of the gravitational areas (Somea 1987). This situation brings us to believe that there exists a strong competition in the Abruzzo "regione" and the reconfirming of discordances between productive centres and urban areas.

The competition between central places in the present ideological and cultural context (Dematteis 1985) transfers itself continuously to the peripheral areas, beside the ones already extensively urbanized, only if they are well connected with each other. According to a new logic, the time distance prevails over the money distance. The diffusion of motor vehicles (1984: 33.7 vehicles per 100 inhabitants) and the reduction in cost of each kilometre covered with respects to income, the almost omnipresent availability of information and its elaboration, that is the mass media and communication devices (1986: 42.66 telephones per 100 inhabitants), are strengthening the relocation trends that should benefit the road network. But, the knowledge of the trends taking place varies from place to place and the inertia of the existing structures is great, in particular the traditional centres situated in hilly areas (Penne, Atri, Campoli, Città Sant'Angelo are valid examples) of cantonal Abruzzo, which instead of being attracted towards their own area, seem more attracted to nominal values rather than to those substantial ones of the urban condition. A condition endeavoured to be reobtained with an over abundant tertiary sector: imposed and subsidized services by the community (hospitals, museums, schools, and so on).

In conclusion, this report has considered the present situation, which is related to a rooted past, and those possible links with the near future. We see as being very probable the evolution of the coastal hilly areas in a reticular system of centrality having as its central place the metropolitan area of Chieti-Pescara, that will require the construction of trans-hilly linkages from north to south. The above mentioned linkages will ultimately end up in favour of the traditional centres that seem more willing to accept the new order (Nereto, Mosciano Sant'Angelo, Castiglione Messer Raimondo, Collecervino, Tollo, Gissi). In the internal area of Abruzzo, regional organization related to the Tyrrhenian metropolitan centres (Rome and Naples), already mentioned, seem to be the most solid alternative. However, one must remember that motorway tunnel of the Gran Sasso mountain seems to be a good chance for L'Aquila to transfer its interests towards the high valley of the Vomano ri-

ver and that requests forwarded by Avezzano and Sulmona to be recognized as the chief towns of new provinces could modify or change the general urbanistic trend of the area.

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- (1) Abruzzo's transhumant shepherds availed themselves for about nine months of pastures situated in other Italian regions (Apulia, and Latium). A small percentage of shepherds practised transhumance in Abruzzo: in winter they drove their flock of sheep to pasture on the "stucchi", so called because the field rent did not depend on the number of the sheep, and they had to pay special duties to the "Doganella" in Atri.
 - (2) The above applies to Pescara as well whose development from a fortress, isolated in a marshy and malarial area, to a town was favoured both by food industries of the "pasta" factory and of bread-making (in the XIX century a big plant was installed which supplied bread to a lot of military garrisons in Central Italy) and by brick-works whose high revenues enabled the establishment of local banks.
 - (3) The railway lines opened to traffic in the XIX century are the following: Adriatic line (1863); Pescara-Sulmona-L'Aquila (1883); Sulmona-Roma (1892); Sora-Balsorano (1895); Sulmona-Castel di Sangro-Isernia (1897); Rocca-secca-Roma-Sulmona (1899). Successively were built the "Sangritana railway" the narrow-gauge railway, Pescara-Montesilvano-Penne (nowdays out of order), and the Avezzano - Balsorano line (opened to traffic in 1902) that completed the railway system between the Liri river valley and the "Conca del Fucino".

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Table 1. Resident population and rank according to the RSR (rank-size rule) in twenty communes, the most populous in Abruzzo in 1981, and comparison with the resident population at the time of some preceding censuses.

a = population; b = rank; c = variation in percentage of population

Commune	1871		1901			1931			1981		
	a	b	a	b	c	a	b	c	a	b	c
Pescara	11.566	8	16.165	6	+40	37.966	2	+134	131.330	1	+246
L'Aquila	35.172	1	43.829	1	+25	51.174	1	+17	63.678	2	+24
Chieti	24.762	2	26.343	2	+6	33.905	3	+29	54.927	3	+62
Teramo	20.639	3	24.972	3	+21	31.790	4	+27	51.092	4	+61
Avezzano	8.747	13	13.107	9	+50	19.658	8	+50	33.885	5	+72
Lanciano	17.339	4	18.316	4	+6	22.427	5	+22	32.315	6	+44
Vasto	13.840	6	15.542	7	+12	17.101	9	+10	30.183	7	+76
Montesilvano	2.504	122	3.607	89	+44	5.433	45	+51	29.240	8	+438
Sulmona	15.087	5	18.247	5	+21	21.060	6	+15	23.736	9	+13
Ortona	12.096	7	15.523	8	+28	19.725	7	+27	21.812	10	+11
Giulianova	4.873	33	7.561	21	+55	10.007	18	+32	21.360	11	+113
Roseto degli Abruzzi	4.611	37	7.447	22	+62	11.011	13	+48	20.994	12	+91
Francavilla al Mare	4.719	36	5.683	36	+20	8.232	22	+45	16.919	13	+106
San Salvo	1.843	180	2.727	128	+48	3.287	110	+21	12.560	14	+282
Penne	10.022	9	10.326	12	+3	12.035	12	+17	11.670	15	-3
Atri	8.752	12	11.850	10	+35	12.649	10	+7	11.454	16	-9
Spoltore	4.376	39	5.245	38	+20	5.977	34	+14	10.552	17	+77
Pineto	3.092	86	3.715	82	+20	4.317	63	+16	10.524	18	+143
Celano	6.011	24	8.430	17	+40	9.531	20	+13	10.429	19	+9
Silvi	3.329	75	4.185	65	+26	5.548	41	+33	10.266	20	+85
Abruzzo	867.977	-	1.070.361	-	+23	1.168.099	-	+9	1.218.000	-	+4
Italy	27.303.000	-	32.965.000	-	+21	41.652.000	-	+26	56.557.000	-	+36
(Abruzzo/Italy)·100	3,18	-	3,25	-	-	2,80	-	-	2,15	-	-

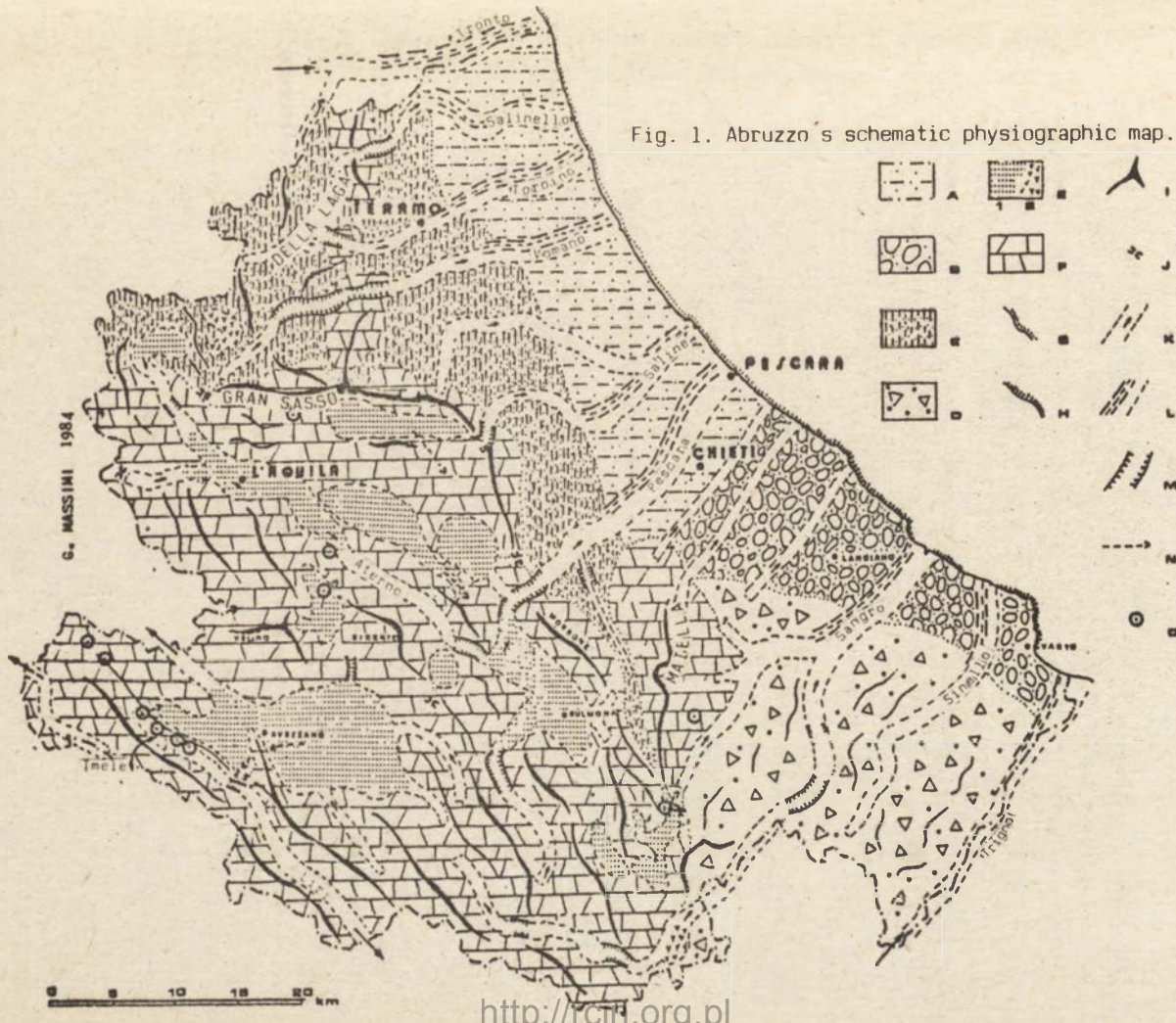


Fig. 1. Abruzzo's schematic physiographic map.

- A
- B
- C
- D
- E
- F
- G
- H
- I
- J
- K
- L
- M
- N
- O
- P
- Q
- R

Fig. 1. Abruzzo's schematic physiographic map:

A - clayey coast hills exposed to the gullying; B - Piano Frentano with conglomerates, subdivided by several and encased valleys; C - marly-arenaceous hills and mountains Laga's Formation; D - hills and mountains of chaotic and clayey's formation; E - E₁ - basins and intermountain plateaux, E₂ - peats-bogs; F - calcareous mountains; G - low coast; H - high coast; I - the chief mountainous reliefs; J - the chief passes; K - the chief valley's furrows; L - asymmetrical valleys; M - gorge; N - prevalent underground drainage; O - caves or important open pits.

Fig. 2. Communes that have more resident population than the other bordering ones in Abruzzo (1861 and 1981).

A = 1861; B = 1981; C = 1861 and 1981; D = Part of a commune cut off the main body. N.B.: present borders.

1 - Martinsicuro; 2 - Giulianova; 3 - Corropoli; 4 - Mosciano Sant'Angelo; 5 - Atri; 6 - Sant'Egidio alla Vibrata; 7 - Pianella; 8 - Penne; 9 - Popoli; 10 - Ortona; 11 - Vasto; 12 - Lanciano; 13 - Palmoli; 14 - Guardiagrele; 15 - Villa Santa Maria; 16 - Torricella Peligna; 17 - Castiglione Messer Marino; 18 - Pizzoferrato; 19 - Palena; 20 - Capestrano; 21 - Sulmona; 22 - Castel di Sangro; 23 - Castelvecchio Subequo; 24 - Montereale; 25 - Cerchio; 26 - Gioia dei Marsi; 27 - Scanno; 28 - Alfedena; 29 - Avezzano; 30 - Tagliacozzo; 31 - San Vincenzo Valle Roveto; 32 - Balsorano.

Fig. 2. Communes that have more resident population than the other bordering ones in Abruzzo (1861 and 1981).

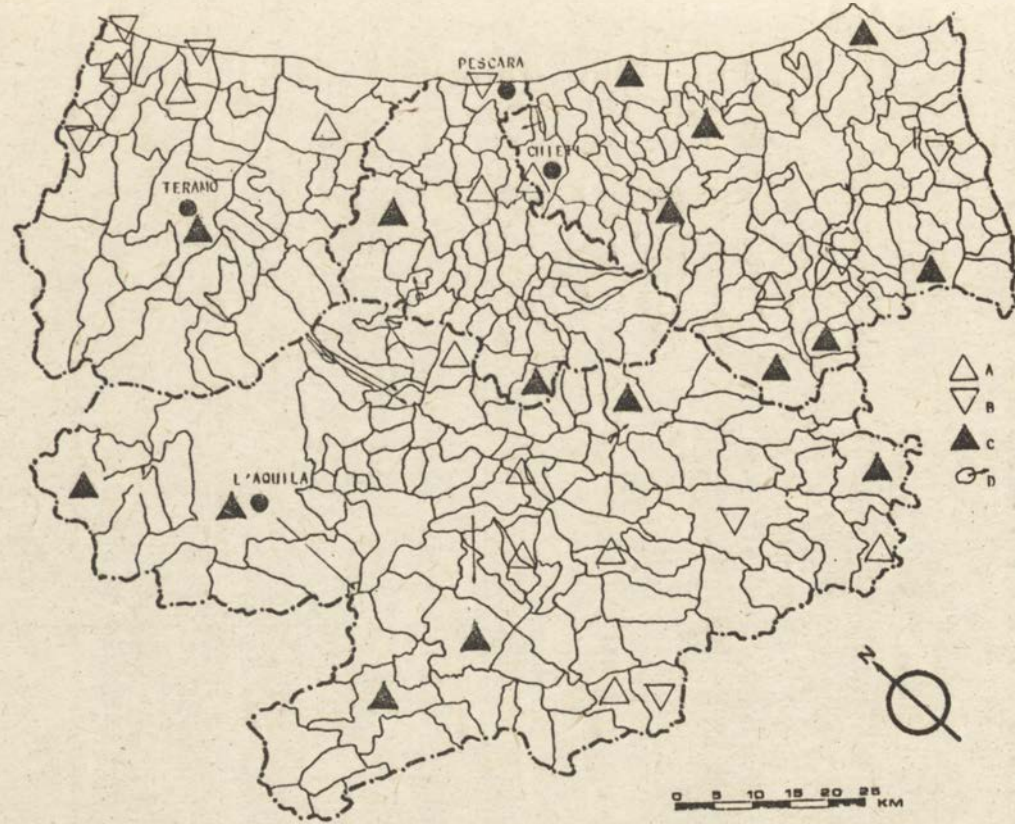


Fig. 3. Central places on administrative base (1861 an 1901).

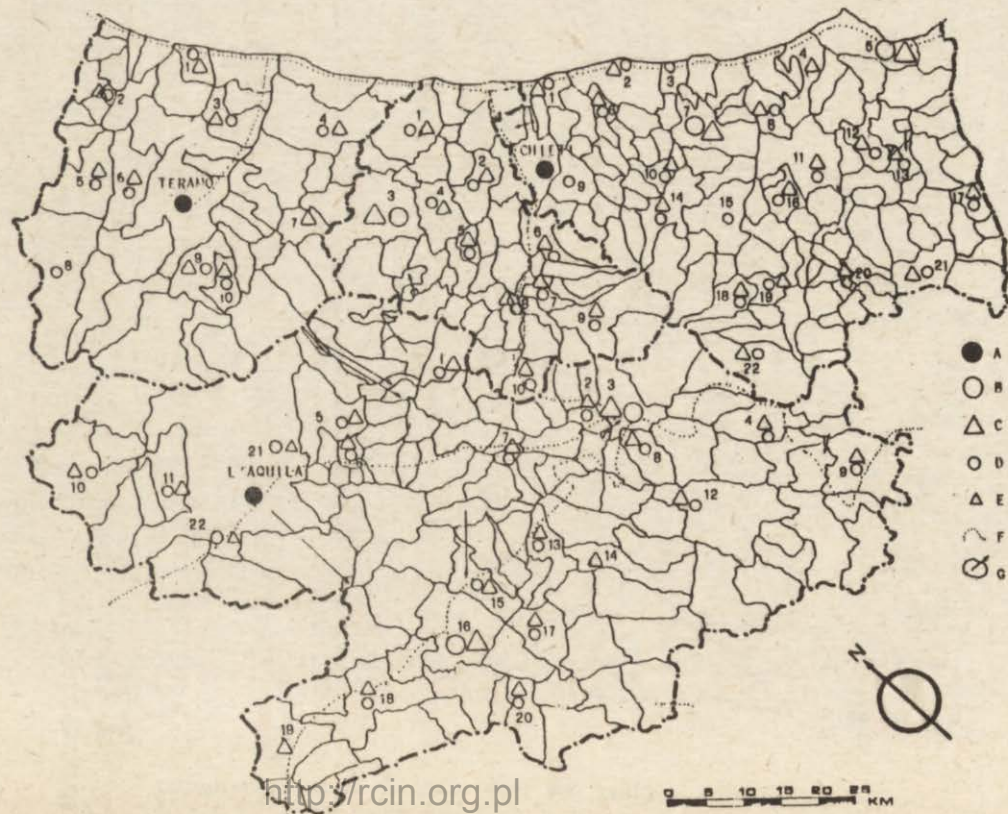


Fig. 3. Central places on administrative base (1861 an 1901).

A - chief town of "Provincia" (1861 and 1901); B - chief town of "Distretto" (1861); C - chief town of "Circondario" (1901); D - chief town of "Circondario" (1861); E - chief town of "Mandamento" (1901); F - railway lines open to the traffic in 1901; G - part of a commune cut off the main body - N.B.: present borders.

"Provincia" of Teramo: 1 - Giulianova; 2 - Nereto; 3 - Notaresco; 4 - Atri; 5 - Civitella del Tronto; 6 - Campli; 7 - Bisenti; 8 - Valle Castellana; 9 - Montorio al Vomano; 10 - Tossicia.

"Provincia" of Pescara: 1 - Città Sant'Angelo; 2 - Pianella; 3 - Penne; 4 - Loreto Aprutino; 5 - Catignano; 6 - Manoppello; 7 - San Valentino in Abruzzo Citeriore; 8 - Torre de' Passeri; 9 - Caramanico Terme; 10 - Popoli.

"Provincia" of Chieti: 1 - Francavilla al Mare; 2 - Ortona; 3 - San Vito Chietino; 4 - Casalbordino; 5 - Vasto; 6 - Tollo; 7 - Lanciano; 8 - Paglieta; 9 - Bucchianico; 10 - Orsogna; 11 - Atesa; 12 - Gissi; 13 - San Buono; 14 - Guardiagrele; 15 - Casoli; 16 - Bomba; 17 - Celenza sul Trigno; 18 - Lama dei Peligni; 19 - Torricella Peligna; 20 - Villa Santa Maria; 21 - Castiglione Messer Marino; 22 - Palena.

"Provincia" of L'Aquila: 1 - Capestrano; 2 - Pratola Peligna; 3 - Sulmona; 4 - Pescosansonesco; 5 - Barisciano; 6 - San Demetrio ne Vestini; 7 - Castelvecchio Subequo; 8 - Anversa degli Abruzzi; 9 - Castel di Sangro; 10 - Montereale; 11 - Pizzoli; 12 - Scanno; 13 - Pescina; 14 - Gioia dei Marsi; 15 - Celano; 16 - Avezzano; 17 - Trasacco; 18 - Tagliacozzo; 19 - Carsoli; 20 - Civitella Roveto; 21 - Paganica; 22 - Sassa.

N.B.: Paganica and Sassa were absorbed by the commune of L'Aquila in 1927.

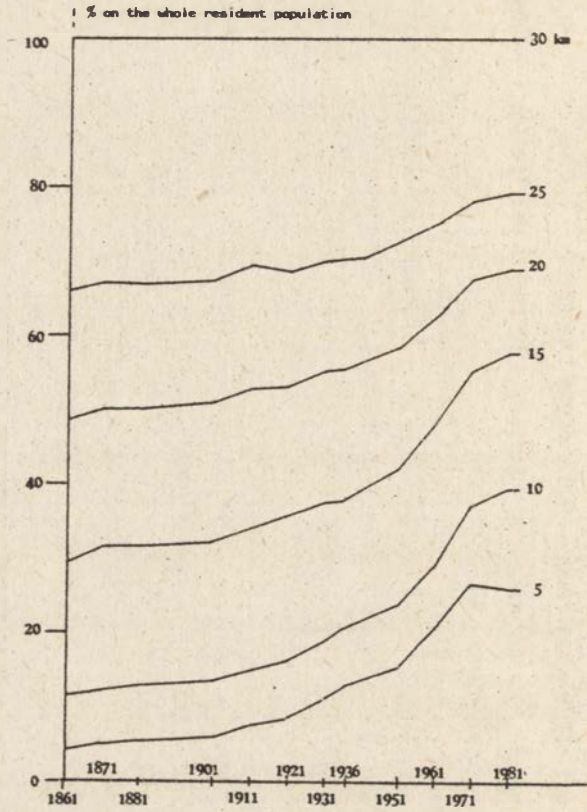


Fig. 4. Resident population's percentage within a radius of 30 km from Pescara at the time of the indicated censuses.

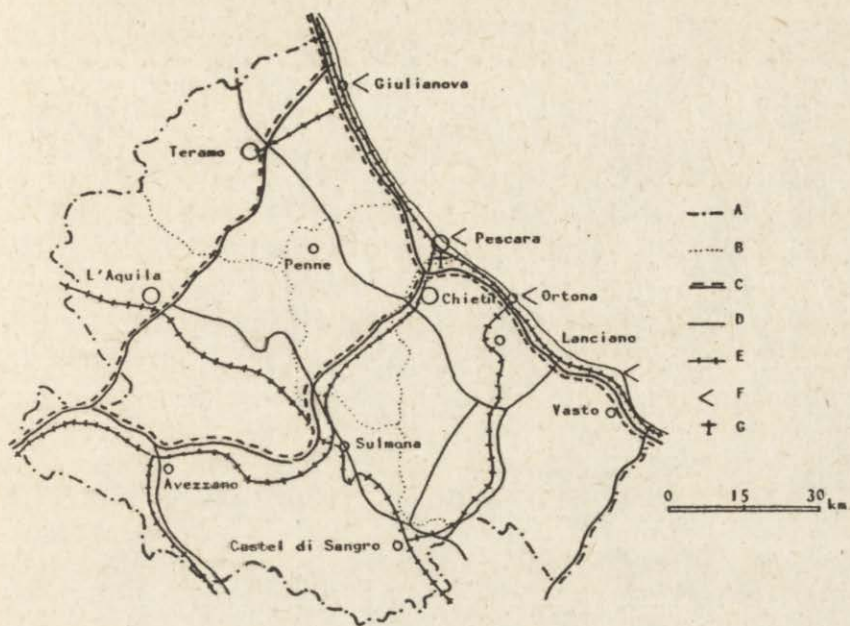


Fig. 5. Abruzzo's schematic communications map.

A - border of "Region"; B - border of "Provincia"; C - motorway (built, being built, planned); D - speedway (built, being built, planned); E - railway; F - port; G - airport.

Fig. 6. Central places on the base of offered or imposed services (1988).

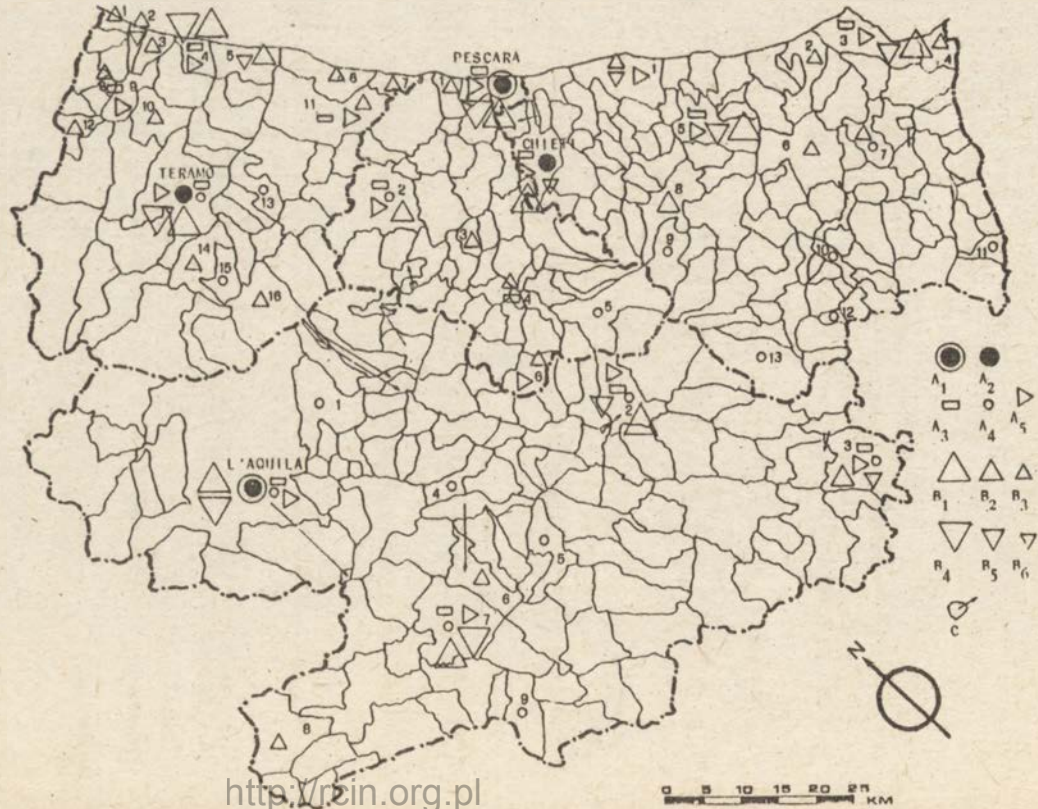


Fig. 6. Central places on the base of offered or imposed services (1988).

A - imposed service: A₁ - central place with administrative functions of chief town of "regione"; A₂ - the same with functions of chief town of "provincia"; A₃ - the same with functions of chief town of "Distretto Scolastico"; A₄ - the same with functions of chief town of "Comunità Montana"; A₅ - the same with functions of "Unità locale socio-sanitaria".

B - offered services: B₁ - central place with service's range to the families of level 4; B₂ - the same of level 3; B₃ - the same of level 2; B₄ - central place with service's range to the concerns of level 3; B₅ - the same of level 2; B₆ - the same of level 1.

C - part of a commune cut off the main body.

"Provincia" of Teramo: 1 - Martinsicuro; 2 - Alba Adriatica; 3 - Tortoreto; 4 - Giulianova; 5 - Roseto degli Abruzzi; 6 - Pineto; 7 - Silvi; 8 - Nereto; 9 - Sant'Omero; 10 - Bellante; 11 - Atri; 12 - Sant'Egidio alla Vibrata; 13 - Cermignano; 14 - Montorio al Vomano; 15 - Tossicia; 16 - Isola del Gran Sasso d'Italia.

"Provincia" of Pescara: 1 - Montesilvano; 2 - Penne; 3 - Catignano; 4 - Torre de' Passeri; 5 - Caramanico Terme; 6 - Popoli.

"Provincia" of Chieti: 1 - Ortona; 2 - Casalbordino; 3 - Vasto; 4 - San Salvo; 5 - Lanciano; 6 - Atessa; 7 - Gissi; 8 - Guardiagrele; 9 - Pennapiedimonte; 10 - Villa Santa Maria; 11 - Castelguidone; 12 - Quadri; 13 - Palena.

"Provincia" of L'Aquila: 1 - Barisciano; 2 - Sulmona; 3 - Castel di Sangro; 4 - Secinaro; 5 - Pescina; 6 - Celano; 7 - Avezzano; 8 - Carsoli; 9 - Civitella Roveto.

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RESIDENTIAL MOBILITY IN THE WARSAW REGION

1. Introduction

In studies on residential mobility one can distinguish several directions and approaches. In macro-analytical studies on intra-urban migrations stress was laid on the interdependencies between socio-economic and demographic factors and immigrations and outmigrations by origin and destination. In research on the micro-scale the behavioural approach was used in explaining individual residential preferences. In recent years the impact and limitations of the housing market have been deemed as one of the most important elements in explaining residential mobility (Congdon 1988; Potrykowska 1987). Residential mobility can be defined as adjustment to the housing situation so that the housing needs and aspirations of people be satisfied through change of place of residence (Scholten, Hooimeijer 1985). Against this background, the present paper concerns research on interdependencies between patterns of intra-regional and intra-urban migration and the socio-demographic and housing structure in the Warsaw region, with due attention payed to the trends of the population change and housing developments.

2. Present spatial structure of population growth

The spatial structure of the Warsaw region can be initially defined as the core and its zones: the inner ring and outer ring and, moreover, disaggregated according to sectors (Fig.1).

The population movements between the respective zones are determined by the mutual relations between population distribution, job vacancies and housing stock. The processes of changes of these structures in the period of 1950-1985 are presented below.

First, it would be worthwhile to follow the process of the spatial development of population change in the Warsaw region. Fig. 2 shows the rates of population growth according to zones in the 1950-1985 period against the regional average taken as 100%. One should stress the high degree of population concentration in the Warsaw region reaching 68.2%. Starting from 1950 the changes in the proportions of population increase between the core and the remaining parts of the region oscillated in respective periods. Hence, the rate of growth of population in the core and inner ring in the years 1960-1970 was lower than in the postwar period of reconstruction 1950-1960 owing to the policy of the limited growth of Warsaw and its surrounding zone. The drop in Warsaw's population growth rate below the regional average was made up for by the increase of population in the region's outer ring. Fig. 2 shows the differentiation of the population growth rate of Warsaw's districts. In the period discussed one only discerns population growth rate increase in the districts of Żoliborz and Praga South where new housing estates were built at that time. In the seventies one notes a reversal of trends - an accelerated increase of Warsaw's population and a fall in the population growth rate of the outer ring caused by a change in the state investment project policy, housing construction inclusive.

Fig. 3 shows the annual population growth rates between 1970-1985 according to zones and sectors of the Warsaw region. This development is correlated with the increase in the birth rate in the 1970s connected with the postwar "baby-boom" generation entering productive age. The peak phase of this second cycle of growth falls in the 1973-1978 period, the growth rate for the city of Warsaw was about 2% annually, while in respective districts of the inner zone it exceeded this value significantly (Fig. 4). The highest growth rates were noted in the districts of Mokotów (about 4-5% annually) and Praga North (here the index oscillated between 4% in 1973 and 7.3% in 1977). That period saw the gigantic construction sites of housing estates: Stegny and Ursynów, Natolin in Mokotów and the Bródno estate in Praga North.

The population growth rates of cities of the outer zone were analogous and reached 2.5% in 1973 and 1.6% in 1978. The rapid drop in the population growth rate of cities within this zone in 1976-77 (-6.2%) stems from the fact

that the city of Ursus was incorporated into Warsaw's administrative borders in 1977. At the same time a rapid population increase occurred in the district of Ochota (25.5%). Only the district of Śródmieście systematically lost its population from 1970 till 1984 (about 1% annually at the beginning of the seventies and even 3.3% in 1978). In 1985, nonetheless, positive population growth rates were recorded in this district (0.44%).

The remaining rural areas of the region, i.e. rural communes of the Warsaw voivodship, lost their population in the period discussed, with negative indices appearing till the end of 1977. From 1978 on the regional population growth rates fell from 1.5% to 0.5-0.6% annually, and for cities of the outer ring to 0.8%, while the respective growth rates of rural areas in the outer ring rose from values nearly equal zero (0.27 in 1978) to 1% in 1985. This trend is associated with the breakdown of housing construction programmes and a sharp economic crisis. One notes a fall in population growth rates (to values close to zero) in all of Warsaw's districts while starting from 1978 population decreased in the districts of Śródmieście and Ochota.

The analysis of the character and the population change of the Warsaw region was based on statistical indices of net migration and natural increase, the basic components of the total population change (Table 1).

Warsaw is characterized by low birth rates in comparison to the national average. One should, however, stress that while natural increase, excluding Warsaw's core, was always positive after the War, in the case of the outer ring the birth rate was always higher there than in Warsaw (slightly higher in towns, several times higher in rural areas). The lowest values of the birth rate and natural increase occur in Warsaw's core (higher natural increase has been recorded there since 1980). Moreover Warsaw's population growth chiefly depends on immigration which constitutes the main component of total population change (in 1978 - 72%, in 1981 - 73% while in 1985 - 49,6%). The growth curve of the two components discussed indicates a drop of immigration from 1978 on and a simultaneous decline in the natural increase after 1980 (Fig. 5, Table 1).

On the scale of the whole region the pattern of changes was similar to that of the central city. The slow but constant fall in the rate of natural increase caused the latter to differ even more from the national average which stabilized since the mid-1970s (Korcelli and Węclawowicz 1985, p. 162). When analyzing the net migration rate for Warsaw and the rest of the region one

should take note of the significant disparities (Fig. 5). Up to 1981 Warsaw was characterized by high immigration and net migration indices with low out-migration indices. Small migration surpluses occurred in the outer ring (with the exception of 1975 and 1977 when changes in administrative boundaries brought about oscillations in these indices) and migration losses occurred between 1980 and 1981 (the rate of net-migration was -0.07 in 1981).

The city of Warsaw is a clear-cut gainer in migration exchange with the surrounding area, i.e. rest of the Warsaw voivodship. Nevertheless, the rates of immigration (per 1000 inhabitants) to the outer ring are 3 times higher than those of immigration to Warsaw, while the outmigration rates are about 5 times higher. This phenomenon was partially explained by administrative control over immigration. These restrictions were abolished in 1983, but the out-migration rate for migration did not change (4.1% in 1981 and 4% in 1985); however immigration fell 2.5-fold (12.5% in 1981 to 5% in 1985). The outer ring had positive net-migration in 1985.

The interaction of the phenomena of migration and natural increase bears an impact on changes in the population growth rate of the region and on the trends and character of population growth.

3. Housing development and the housing conditions

The mutual relations between the distribution of housing stock and the population number in the Warsaw region (as average dwelling occupancy rate) have shown disparities between the core and the outer-ring. The lowest average flat occupancy rates occur in the inner-ring. The most favourable rates below 1.0 person per room in 1985 were a feature of Warsaw (0.97) and those towns of the region where one-family housing of the higher-income population groups was located before the war (towns in the Pruszków, Piaseczno and Wołomin sectors). The general trends of changes in the spatial distribution of this index is the constant fall in its value. In the remaining areas the average number of persons per dwelling which was 1.8-1.4 in 1970, fell to 1.6-1.2 in 1985. The occupancy index of dwellings depends on the structure of their size. The average number of people per room decreases fast as the size of dwellings increases. This rate increases once again in the biggest dwellings the fact which undoubtedly stems from the phenomenon of two (or more) families sharing them.

As concerns the dwelling occupancy rate and quality of housing stock the situation in Warsaw is much better than in the outer-ring where, in turn, the situation is better in towns than in the countryside. The important present disparities in housing conditions include differences in the quality of dwellings in terms of accessibility to respective utilities and possibility of using them, which determines the standard of living. The line of this diversification runs between the housing of Warsaw's inner ring and the outer ring, including mainly state multi-family housing.

A majority of houses in Warsaw have full functional quality while the outer ring has a very significant part of old buildings which are worn down to a large extent. Hence, these resources do not match those built after the war in Warsaw as concerns functional quality. The diversification in the character of the region's housing stock is reflected in the index of the average number of dwellings per house. In Warsaw these indices reach over 4. Thus, multi-family housing which in Polish conditions is considered a metropolitan feature, is dominant. The average size of houses in the region's cities was significantly smaller than in Warsaw, whereas, the share of one-family housing is high. Multi-family housing is generally located in areas strongly connected with Warsaw (e.g. commuting to work). The index here amounts to about 3 dwellings per building. The diversification of the average size of dwellings in the region arises from, inter alia, differences in the character of houses; one-family housing prevails in the outer ring while its share in Warsaw is minimal.

The development of housing construction in the beginning of the seventies had an impact on transformations of the size structure of the housing stock of the region. In comparison with the state of 1950, the share of small flats (1-2 rooms) fell with medium and large flats gaining. The presented changes in the housing situation in the seventies brought about a certain equalization, nonetheless, the disparities have remained as well as the same factors determining them.

Some demographic and social features of population are also important aside for general factors determining the diversification of housing conditions, such as place of residence, the character and age of houses and the property character. Research conducted by F. Gliszczynski (1967) and other authors H. Kulesza (1982) has shown that the changes in the housing conditions in the Warsaw region reflect disparities of clearly social character. In new housing estates white collar workers generally dominated over blue collar

workers, or at least the share of the former among the residents of the estate was higher. The dwellings of white collar workers were on the whole less intensively inhabited than in the case of blue collar workers which is still associated with certain differences in family size. Flats built by public means were above all allocated to employees with high skills. Among the non-agricultural population the worse-off families were at a disadvantage as concerns housing conditions. Moreover, the rent burden in these families, in comparison to their incomes, was greater than average (Gliszczyński 1967; Potrykowska 1983).

Generally, the housing situation in the seventies has not changed. The improvement in the standard of flats was accompanied by their growing quantitative deficit which caused an increase in the frequency of families sharing flats. Moreover the improvement in the quality of flats did not compare with the rise in the aspirations of the increasingly younger and better educated society. Despite certain transformations the disparity between the housing conditions of the urban and rural population has not decreased (the difference in the standard of dwellings and the index of flat occupancy (Kulesza 1982).

The changes in the housing conditions of the population in the seventies took place under the influence of many factors of which the most important are demographic changes, the state's investment policy and the migrations associated with this policy.

Demographic changes were manifested in, inter alia, a strong increase in the share of population in the age when new households are formed.

The population growth which took place mainly in the cities was the result of further migrations from rural areas. The fall in the rural population was accompanied by an increase in the number of separate households in the countryside. The migrations to cities and the concentration of population in Warsaw and the towns of the region as well as the process of further desintegration of households (especially in the countryside) have all contributed to a large rise in housing needs.

The growth rate of housing stock depended more on the extent of the economic development of the capital city and region of Warsaw and its administrative functions than the existing housing needs.

The growth rate of housing stock in the Warsaw region between 1970-1985 is presented in Figs 6-7. The number of new dwellings increased each year up to 1975. Starting from 1976 the annual growth rate of housing stock fell constantly. On the whole new dwellings in the Warsaw region in 1976 totalled 79.1% of the 1975 production whereas in 1985 only 40.7% (Table 2). A majority of dwellings were built in Warsaw and several cities of the outer ring. The

greatest fall occurred in 1980, in the period of the most severe political and economic crisis. The next sharp fall in the growth rate of housing stock occurred in 1983 as a result of the introduction of several serious price increases for building materials services, cost of energy etc. The growth rate of housing stock increased somewhat in 1984 but fell once again in 1985. The number of dwellings completed in Warsaw in 1985 totalled 32.2% of that of 1975.

One can also see a less dramatic decrease in housing construction in the private and public sectors in the rural part of the region after 1980 as compared to 1975. The fall in the growth rate of housing stock at the end of the seventies and in the eighties entailed an unprecedented rise in unsatisfied housing needs.

The ongoing crisis in housing construction severely affects broad groups of the population, especially young people. A dwelling has become an unattainable good for many people, especially young people, and at the same time a tool in the state policy of distributing the labour force, especially highly qualified, especially in the countryside (in exchange for a flat). In this context housing factors are becoming the important causes of migrations.

4. Migration patterns of intra-regional flows

The pattern of intra-regional migration in the Warsaw region in 1985 is presented in an interaction matrix of 65 x 65 areas of origin and destination. These areas refer to administrative units, i.e. Warsaw's districts and the remaining towns and rural township of the Warsaw voivodship. The region and the city of Warsaw are characterized by positive net migration with the volume of immigration (23 283) exceeding outmigration (19 678) from the region (46.6% of regional immigration and 44.2 of outmigration fell to Warsaw). The value of inter-district migrations (16 668) persons constituted 58.3% and 45.9% of all immigration and outmigration in the region respectively.

In the structure of migrations according to the in-flow, movements from urban to urban places dominate (46.4%), followed by migrations from rural to urban areas (41.7%). Immigration from cities to the rural areas constituted 12.2% while migrations from rural to rural constitute 11.7% of all immigration.

The structure of outmigration according to destination was also dominated by migrations from urban to urban areas (50.6%), followed by urban to rural (22.3%) while movements from rural areas to urban areas (16.2%) and among

the rural areas (10.9%) were smaller in size. Immigration from the cities of the region to Warsaw reached 64% whereas outmigration from Warsaw to the remaining cities of the outer ring 71% of all moves.

Inter-regional migrations between cities are of double nature: on the one hand these are migrations of urban population motivated by socio-economic causes connected with the urban environment and, on the other hand, these are stage-by-stage migration from the rural areas to the urban areas, by the rural population which on its way to settling in the agglomeration core. The analysis that follows concerns interdependences between migrations and socio-demographic as well as housing characteristics.

5. Multiple regression models

The analysis of interdependences between migrations and the demographic-social structure and the housing conditions in the region of Warsaw in 1985 was aimed at testing hypotheses concerning relations between the examined characteristics. A set of 17 variables (the list of variables is presented in Table 3) was compiled on the basis of statistical data for 1985 from the Central Statistical Office (GUS), for 65 administrative units, i.e. towns and communes of the Warsaw voivodship. Two 16×65 matrices were formed in which in-migration and out-migration rates are the dependent variables. Next, simple correlation matrices were calculated allowing for conclusions to be drawn as to the dependence between the respective pairs of variables. In line with the adopted procedure the first model of multiple regression was obtained. The highest values of coefficients of partial regression occur in the case of the variable x_{15} (living space of dwellings per 1 person in sq. metres) and x_{12} (number of rooms completed in 1985 per 1000 persons) - the most significant in the model - describing the quality of housing conditions and the growth of housing stock in the place of destination which has the greatest impact on the volume of migration flow.

The third important variable in the model is x_5 (% population aged 0-19) which describes the propensity of residential mobility of very young people. These variables describing the quality and possibility of acquiring a dwelling in the destination region are the key causal factors of migrations.

The second estimated model of multiple regression, in which the out-migration rate is the dependent variable, is also presented in Table 4.

From the variance analysis and characteristics of regression coefficient one sees that the above equation is significant at the adopted level of $\alpha = 0.01$, while the value of the test function F totals 10.74.

A comparison of the values of partial regression coefficients allows to determine the statistically most important explanatory variable, which is x_2 (the number of marriages per 1000 persons) followed by x_5 (% of population aged 0-19) and x_{15} (living space of dwellings in sq. metres per person). The first two variables describe young families which emigrate from their place of residence due to housing conditions. In the case of out-migration, inadequate housing conditions are the factor pushing young people out of their places of origin.

The values of estimated regression coefficients show that not all variables included in the analysis are significant and that there is reason to reduce the least significant variables in line with the estimated values of the statistic t . In the second stage of analysis step-wise multiple regression was used to obtain a reduced regression model, in which Y_2 was the dependent variable. A reduced model of multiple regression was obtained with three most significant independent variables explaining about 60% of the total variance (x_{13} , x_{12} , x_2). Like in the complete model, the most significant variable is the index of marriages per 1000 persons and the two variables describing the development of housing stock in the place of origin. Unsatisfied housing needs due to the fall in the rate of housing construction are the reason why young married couples leave their residences.

The results of the multiple regression analysis allow one to state that the volume of migration flows in the Warsaw region was influenced by housing conditions both in the origin and the destination regions.

The spatial pattern of intra-regional migrations against the background of housing diversity and types and the situation of housing conditions in the regions's respective zones suggest that migrant attraction fields move in line with the spatial diffusion of housing construction, especially in Warsaw and other cities of the outer zone.

Residential mobility in Warsaw is determined by: inter-district flows of migrations from more distant places - from the outer-ring to newly built housing estates, and to other towns of the region.

The interdependence of migration flow patterns points to the importance of new housing stock and its quality as well as the housing market in shaping observed migration patterns.

6. Conclusions

The main causes and factors of migration in Poland are currently tied with opportunities for improving the economic situation and social position of the migrant - higher living standard and more advantageous social and natural environment. The striving to improve directly one's living conditions is slowly becoming the main cause of migratory movements (Dziewoński, Korcelli 1981, p. 38). Migrations of this kind mainly appear as translocations within agglomerations and urban regions - from the peripheral zone to central districts where the migrant obtains a flat, usually in a new block. This movement is frequently associated with the acquisition of professional skills or higher education.

As long as the country suffers a serious housing deficit the residential mobility levels will not be high. The impact of better living conditions and availability of services (especially of the higher order) will be growing in importance and could become a dominating factor in migration decisions in the future.

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Table 1. Basic data of total population change in the region of Warsaw

No.	Region	Years	Population Number	Density (persons per km ²)	Birth Number	Death Number	Natural increase Number	(Rate per thousand)
1.	Region of Warsaw	1978	2 266 266	597	34 364	22 096	12 268	5.5
		1981	2 341 800	618	34 725	23 550	11 245	4.8
		1985	2 412 200	637	33 231	27 000	6 231	2.6
2.	Cities of Warsaw Region	1978	1 996 434	1 986	28 800	19 553	9 247	4.7
		1981	2 069 127	2 064	29 307	21 024	8 353	4.1
		1985	2 133 125	2 127	28 136	24 157	3 979	1.9
3.	City of Warsaw	1978	1 556 794	3 199	20 983	15 192	5 791	3.7
		1981	1 611 565	3 321	21 579	16 441	5 138	3.2
		1985	1 659 385	3 419	20 467	18 761	1 706	1.1
4.	District of Mokotów	1978	307 129	2 629	4 236	2 546	1 690	5.7
		1981	337 933	2 914	4 277	2 811	1 466	4.4
		1985	356 757	3 075	4 369	3 198	1 171	3.4
5.	District of Ochota	1978	192 311	4 029	2 404	1 709	695	3.7
		1981	184 724	3 888	2 035	1 952	83	0.5
		1985	176 604	3 718	2 212	2 161	51	0.3
6.	District of Praga S.	1978	225 703	2 025	3 035	2 496	539	2.4
		1981	238 027	2 135	3 325	2 631	694	3.0
		1985	252 052	2 261	3 323	2 999	324	1.3
7.	District of Praga N.	1978	222 408	2 024	3 265	2 290	975	4.5
		1981	228 206	2 082	3 255	2 463	792	3.5
		1985	240 770	2 197	2 968	2 666	302	1.3
8.	District of Śródmieście	1978	184 006	1 178	2 552	2 327	225	1.2
		1981	176 103	11 288	2 373	2 389	-16	-0.1
		1985	172 988	11 089	1 983	2 869	-886	-5.2
9.	District of Wola	1978	223 741	5 012	3 001	2 129	872	3.9
		1981	237 418	5 335	3 601	2 368	1 233	5.2
		1985	249 840	5 614	3 042	2 804	238	1.0
10.	District of Żoliborz	1978	201 496	4 961	2 490	1 695	795	4.0
		1981	209 154	5 153	2 713	1 827	886	4.2
		1985	210 374	5 182	2 570	2 064	506	2.4
11.	Inner ring	1978	1 372 788	2 922	18 431	12 865	5 566	4.0
		1981	1 435 462	3 056	19 206	14 052	5 154	3.6
		1985	1 486 397	3 165	18 484	15 892	2 592	1.7
12.	East side of inner ring	1978	448 111	2 027	6 300	4 786	1 514	3.4
		1981	446 233	2 109	6 580	5 094	1 486	3.2
		1985	492 822	2 229	6 291	5 665	626	1.3
13.	West side of inner ring	1978	924 677	3 719	12 131	8 079	4 052	4.4
		1981	969 229	3 899	12 626	8 958	3 668	3.8
		1985	993 575	3 997	12 193	10 228	1 965	2.0
14.	Cities of outer ring	1978	439 640	849	7 817	4 361	3 456	2.3
		1981	457 562	884	7 728	4 583	3 145	6.9
		1985	473 740	916	7 669	5 396	2 273	4.8
15.	Rural areas of outer ring	1978	269 832	49	5 564	2 543	3 021	11.7
		1981	272 056	98	5 418	2 526	2 892	10.6
		1985	279 114	100	5 095	2 843	2 252	8.1

In-migration Number	Out-migration Number	Net-migration Number (Rate per thousand)	Total rate of population change	Employment Jobs (in thou- sand)	Jobs (per 100 persons)	
51 389	33 159	18 230	8.4	13.9	521.0	23.0
43 684	30 299	13 385	5.7	10.5	958.9	40.9
23 413	20 384	3 029	1.2	3.8	901.4	37.4
43 061	21 577	21 484	10.8	15.5	499.2	25.0
35 987	20 333	15 654	7.6	11.7	922.3	44.6
17 886	15 033	2 853	1.3	3.2	864.4	40.5
21 878	5 826	16 052	10.3	14.0	426.9	27.4
20 107	6 663	13 444	8.3	11.5	788.5	48.9
8 328	6 650	1 678	1.0	2.1	738.3	44.5
5 450	1 162	4 288	14.0	19.7	63.8	20.8
5 333	1 277	4 056	12.0	16.4	112.7	33.3
2 093	1 578	515	1.4	4.8	106.9	30.0
2 921	1 046	1 875	9.7	13.4	59.5	30.9
1 729	1 174	555	3.0	3.5	98.4	53.3
809	941	-132	-0.7	-0.4	93.0	52.7
3 547	780	2 767	12.3	14.7	50.1	22.2
3 948	899	3 049	12.8	15.8	89.1	37.4
1 249	785	464	1.8	3.1	82.3	32.6
2 763	688	2 075	9.8	13.8	69.2	31.1
2 891	771	2 120	9.3	12.8	114.2	50.0
1 935	860	1 075	4.5	5.8	104.7	43.5
1 935	725	1 210	6.6	7.8	90.6	49.2
1 806	786	1 020	5.8	5.7	208.4	118.3
1 221	836	385	2.2	-3.0	201.2	116.3
3 394	837	2 557	11.4	15.3	64.1	28.6
2 611	831	1 780	7.5	12.4	115.5	48.6
68	735	-667	-2.7	-1.7	103.4	41.4
1 868	588	1 280	6.3	10.3	29.5	14.6
1 789	925	864	4.1	8.3	50.2	24.0
953	915	38	0.2	2.6	46.8	22.2
19 943	5 101	14 842	10.8	14.8	336.2	35.3
18 301	5 877	12 424	8.6	12.2	580.1	40.4
7 107	5 814	1 293	0.9	2.6	537.1	36.1
6 310	1 468	4 842	10.8	14.2	119.3	26.6
6 839	1 670	5 169	11.1	14.3	203.3	43.6
3 184	1 645	1 539	3.1	4.4	187.0	37.9
13 633	3 633	10 000	10.8	15.2	216.9	23.5
11 462	4 207	7 255	7.5	11.3	376.8	38.9
3 923	4 169	-246	-0.2	1.8	350.1	35.2
21 183	15 751	5 432	12.4	14.7	72.3	16.4
15 880	13 670	2 210	4.8	11.7	133.8	29.2
9 558	8 383	1 175	2.5	7.3	126.1	26.6
8 328	11 582	-3 254	-12.1	-0.4	21.8	8.1
7 697	9 966	-2 269	-8.3	2.3	36.6	13.4
5 527	5 351	176	0.6	8.7	37.0	13.3

Table 2. The Warsaw urban region. Dwellings completed in 1975-1985; 1975 = 100

Warsaw region	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
National economy										
Total	79.1	70.6	78.5	67.7	47.5	57.2	46.9	41.4	42.7	40.7
Cities of region	77.6	69.0	76.1	66.2	44.4	55.9	45.7	39.8	39.4	36.9
City of Warsaw	71.5	63.4	65.3	65.6	39.0	51.4	41.9	33.1	35.3	32.2
Rural areas of the outer ring	108.8	101.5	121.3	96.1	106.2	82.4	69.3	72.1	107.1	113.9
Public sector										
Total	76.6	66.7	75.0	63.4	43.3	54.9	40.7	35.5	37.8	35.0
Cities of region	76.2	67.5	74.1	63.5	42.0	54.1	41.0	35.8	36.1	32.8
City of Warsaw	70.6	62.5	64.1	64.1	38.0	50.9	39.6	31.0	34.0	30.9
Rural areas of the outer ring	99.1	47.2	114.8	51.3	137.1	110.4	20.3	17.4	146.7	183.5
Private sector										
Total	112.9	121.3	124.7	124.2	100.7	87.1	129.0	119.2	107.8	115.7
Cities of region	113.2	120.3	121.3	135.4	107.2	102.9	170.9	145.9	124.1	144.8
City of Warsaw	145.7	144.3	174.0	209.1	127.4	96.8	254.8	227.8	151.6	156.2
Rural areas of the outer ring	112.5	122.3	128.0	113.2	94.3	71.1	88.1	93.1	91.9	87.2

Table 3. Variables used in the multiple regression analysis of residential mobility in the Warsaw urban region, 1985

Dependent variables:

- Y_1 . In-migration-rate
- Y_2 . Out-migration-rate

Independent variables:

Socio-demographic structure:

- x_1 . Sex ratio (% male)
- x_2 . Number of new marriages per 1000 inhabitants
- x_3 . Natural increase per 1000 inhabitants
- x_4 . % population employed in socialised sector
- x_5 . % population aged 0-19
- x_6 . % population aged 20-59
- x_7 . % population aged 60 and over

Housing structure:

- x_8 . Persons per dwelling
 - x_9 . Persons per room
 - x_{10} . Dwellings completed in 1985 per 1000 inhabitants
 - x_{11} . % dwellings completed in private sector, 1985
 - x_{12} . % rooms completed in 1985 per 1000 inhabitants
 - x_{13} . % rooms completed in private sector, 1985
 - x_{14} . Average floor space of dwellings completed in 1985 (in sq. metres)
 - x_{15} . Average living space of dwellings in sq. metres per person
-

Table 4. Intra-regional and intra-urban migration 1985
 Regression coefficients for each variable in the equations

Statistics	Model I			Model II		
Variables	Regression coefficient	Standard error	T	Regression coefficient	Standard error	T
	Y ₁ - In-migration rates			Y ₂ - Out-migration rates		
x ₁	-.8765	1.0984	-.7979	.3683	.5017	.7340
x ₂	1.3760	1.4553	.9455	2.5038	.6648	3.7663
x ₃	-.8068	.3127	-2.5802	.2539	.1428	1.7781
x ₄	-.0229	.1057	-.2168	-.0324	-.0483	-.6723
x ₅	1.8071	.9014	2.0048	1.5387	.4117	3.7372
x ₆	.0988	.1955	.5053	.1175	.0893	1.3160
x ₇	-.5758	.6228	-.9246	.5592	.2845	1.9656
x ₈	-1.4376	6.0019	-.2395	-6.5668	2.7417	-2.3951
x ₉	1.2315	13.4954	.0912	-7.1527	6.1648	-1.1602
x ₁₀	-2.1082	.9052	-2.3291	-.5481	.4135	-1.3255
x ₁₁	.0670	.1024	.6545	.0070	.0468	.1508
x ₁₂	.8780	.2912	3.0145	.1180	.1330	.8869
x ₁₃	-.0173	.1248	-.1389	.1571	.0570	2.7557
x ₁₄	.0380	.0880	.4317	-.1311	.0402	-3.2605
x ₁₅	4.4859	1.2629	3.5521	1.7426	.5769	3.0207
Constant term	-72.1869			-75.4563		
Fisher test	4.2005			10.1198		
Multiple R	.7467			.8673		
Squared statistic (R)	55.7549			75.2227		
Standard error est.	9.4039			4.2958		

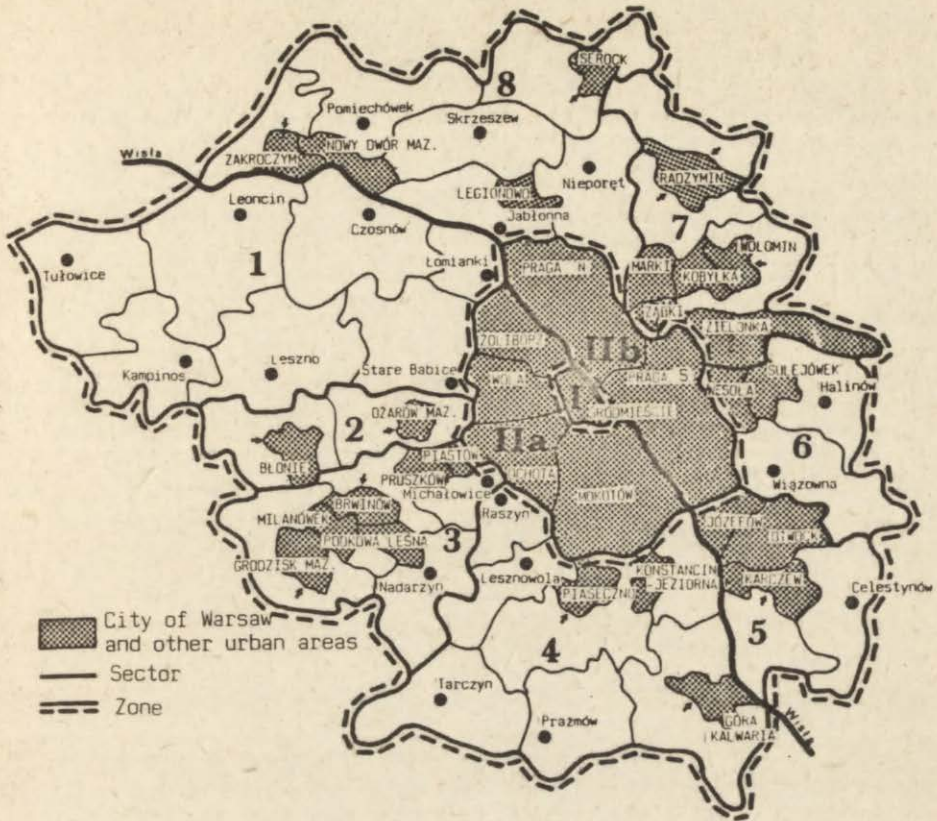


Fig. 1. The urban region of Warsaw, 1985.

I - Core; II - Inner ring (a - West, b - East sides), 1 - 8 - sectors of the outer ring: 1 - Kampinos, 2 - Błonie, 3 - Pruszków, 4 - Piaseczno, 5 - Otwock, 6 - Mińsk Mazowiecki, 7 - Wołomin, 8 - Legionowo.

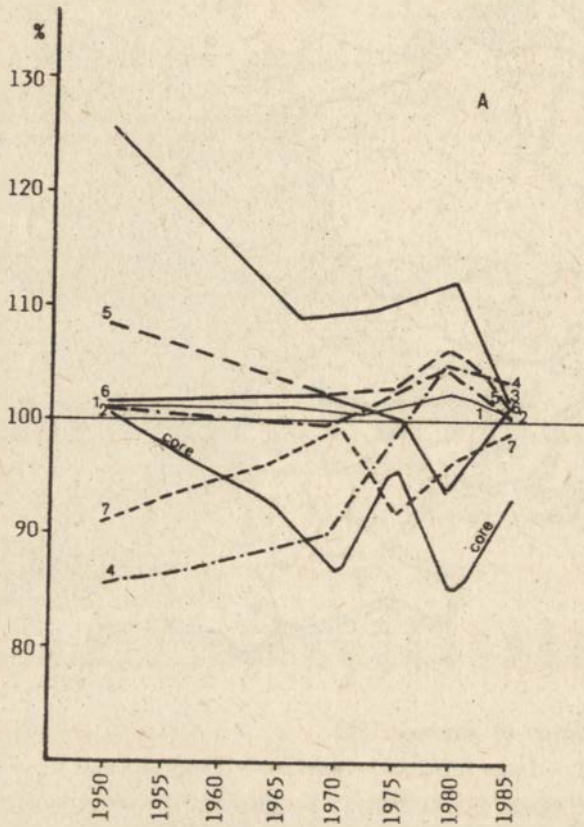
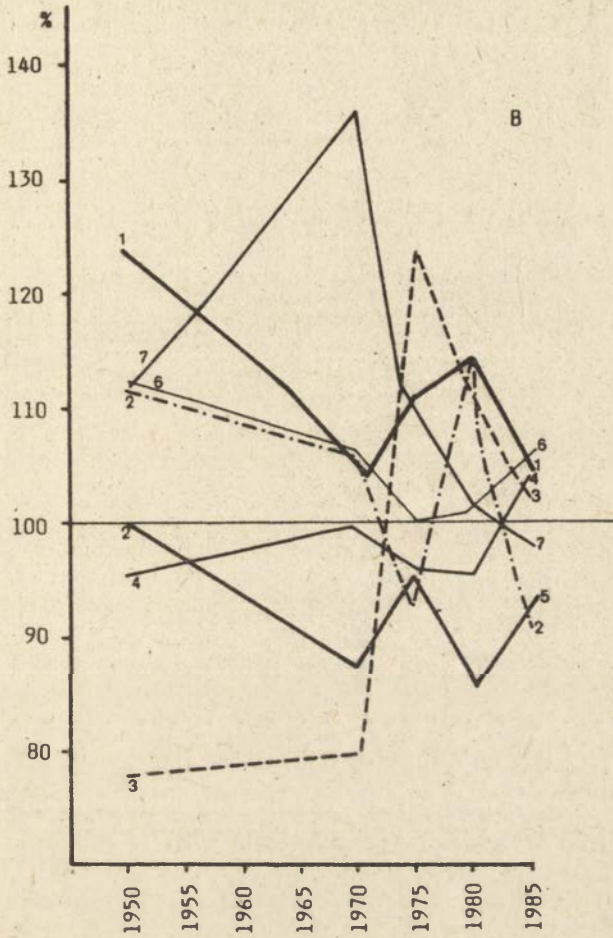


Fig. 2. Population growth in the Warsaw region, 1950-1985. Regional rate - 100%.

A - by zones: 1 - cities of region, 2 - city of Warsaw, 3 - west side, 4 - east side of inner ring, 5 - inner ring, 6 - cities of outer ring, 7 - rural areas of outer ring.

B - by districts of the city of Warsaw: 1 - Mokotów, 2 - Ochota, 3 - Praga South, 4 - Praga North, 5 - Śródmieście, 6 - Wola, 7 - Żoliborz.



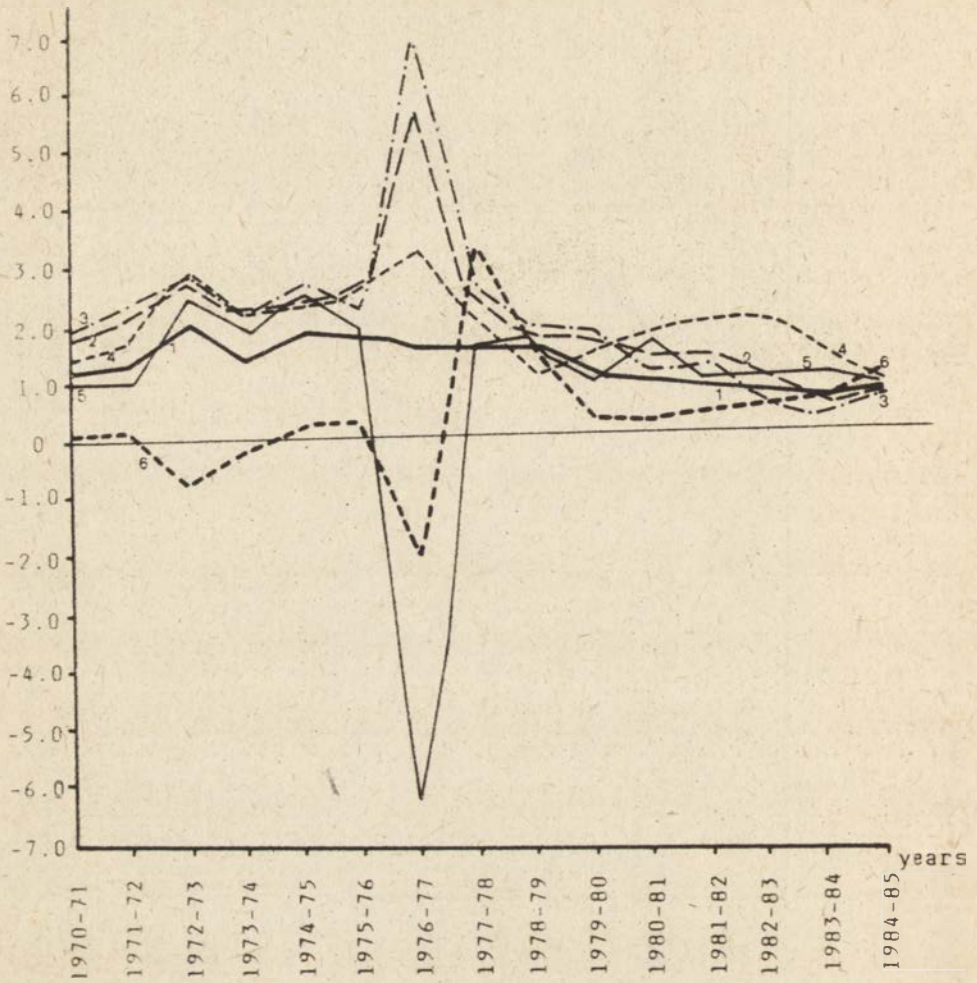


Fig. 3. Annual rates of population growth, 1970-1985.

1 - region of Warsaw, 2 - inner ring, 3 - west side of inner ring,
 4 - east side of inner ring, 5 - cities of outer ring, 6 - rural
 areas of outer ring.

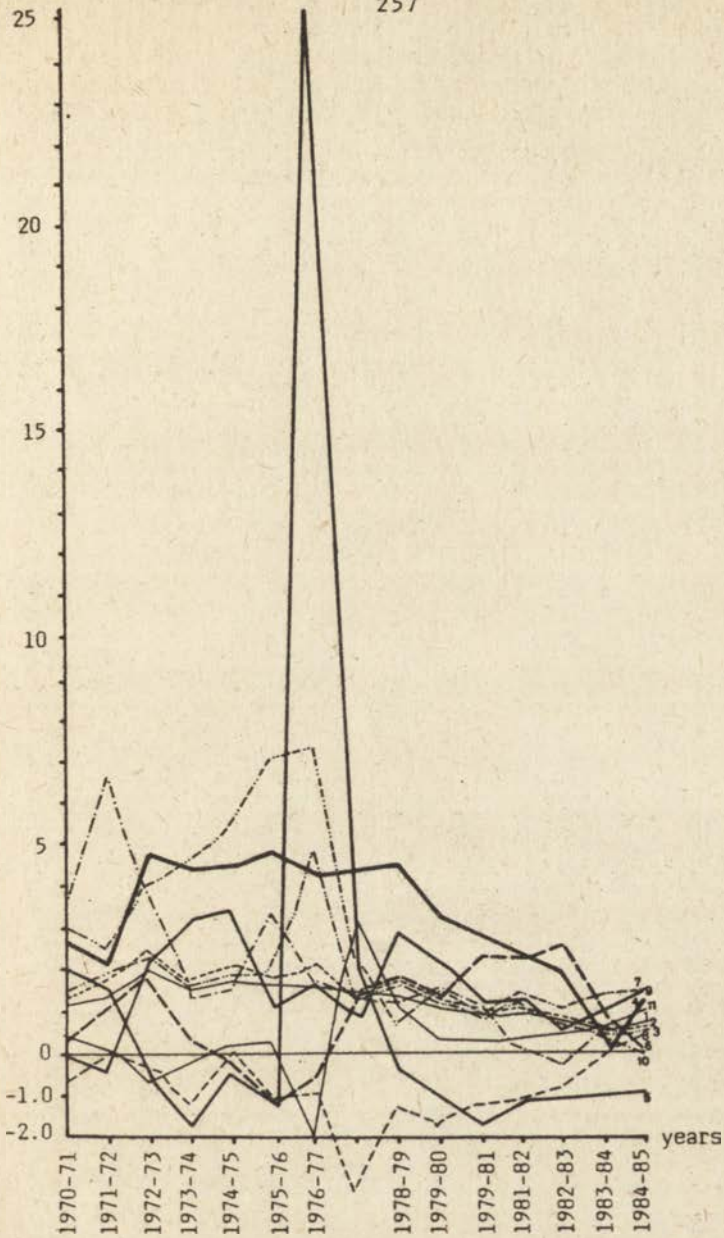


Fig. 4. Annual rates of population growth, 1970-1985.

1 - population change of Warsaw region, 2 - urban population change of region, 3 - population change of the city of Warsaw, 4-10 - population change in districts of Warsaw: 4 - Mokotów, 5 - Ochota, 6 - Praga S, 7 - Praga N, 8 - Śródmieście, 9 - Wola, 10 - Żoliborz.

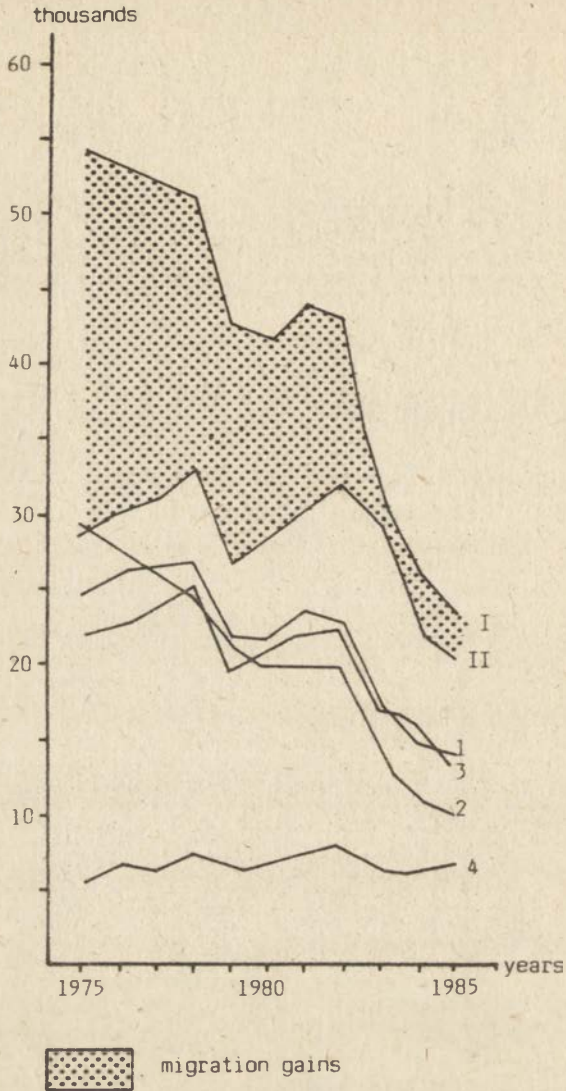


Fig. 5. Migration trends in the Warsaw region, 1975-1985.

I - total in-migration, II - total out-migration

1 - in-migration from cities, 2 - in-migration from rural areas

3 - out-migration to cities, 4 - out-migration to rural areas.

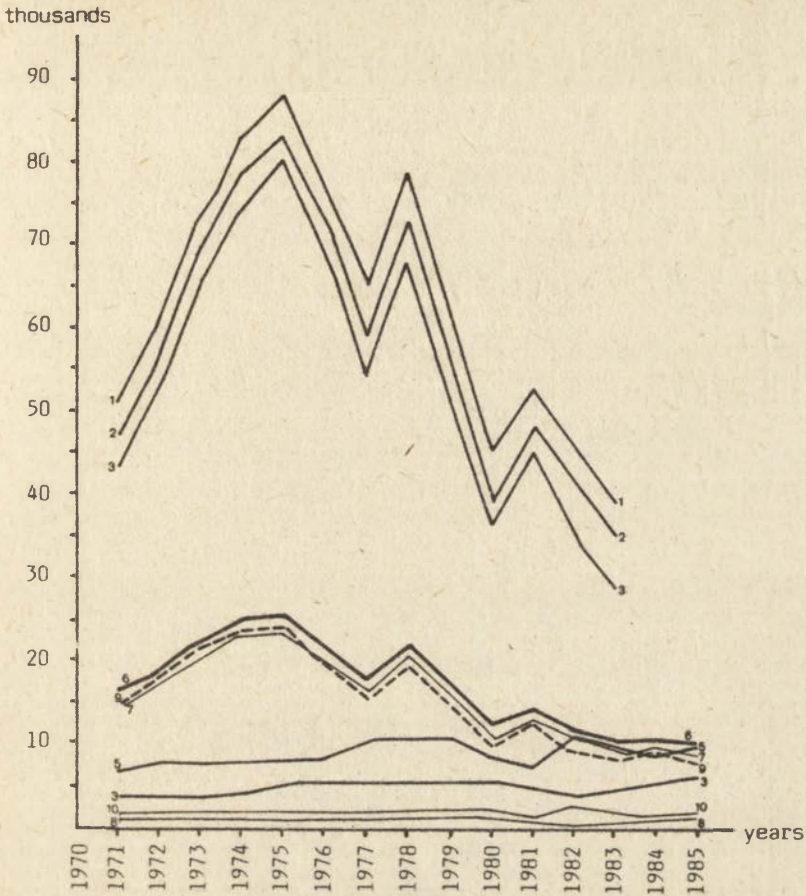


Fig. 6. Dwellings and rooms completed in the Warsaw region, 1970-1985.

1 - rooms completed in the region of Warsaw, 2 - rooms completed in cities of region, 3 - rooms completed in rural areas, 4 - rooms completed in socialized sector, 5 - rooms completed in private sector, 6 - dwellings completed in the Warsaw region, 7 - dwellings in cities, 8 - dwellings completed in rural areas, 9 - dwellings completed in socialized sector, 10 - dwellings in private sector.

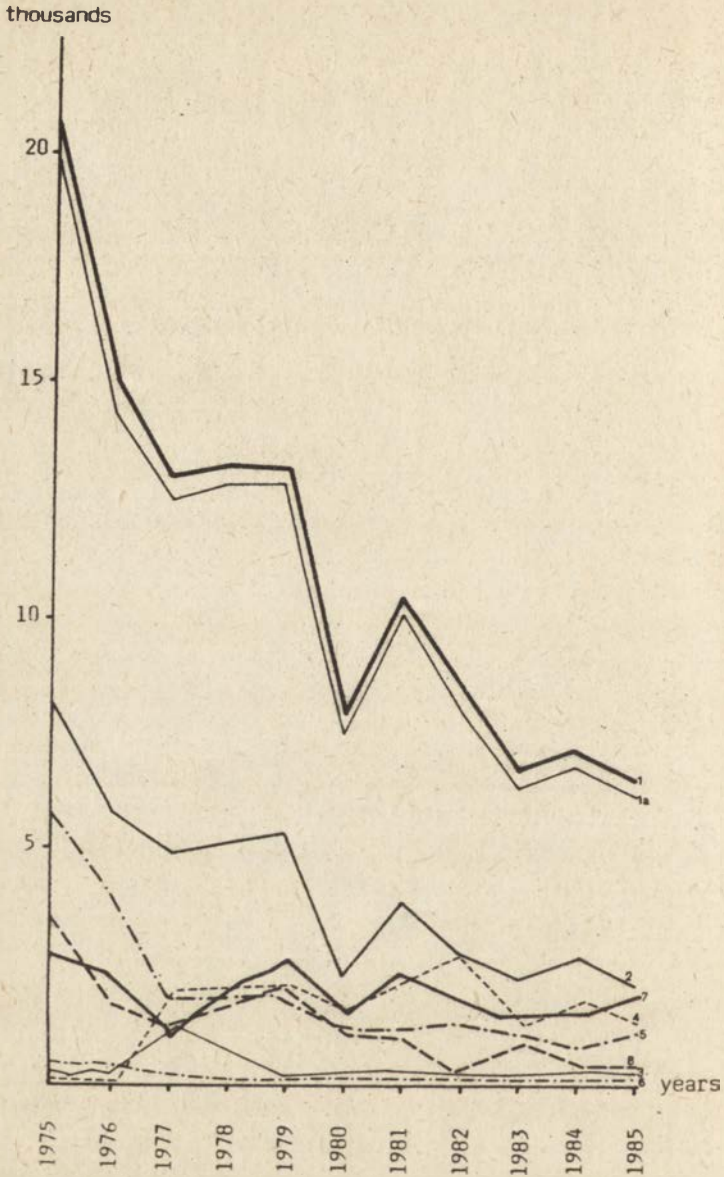


Fig. 7. Dwellings completed in the city of Warsaw, 1975-1985.

1 - total number of dwellings completed in Warsaw, 1a - dwellings completed in public sector, 2-8 - dwellings completed in districts of Warsaw: 2 - Mokotów, 3 - Ochota, 4 - Praga South, 5 - Praga North, 6 - Śródmieście, 7 - Wola, 8 - Żoliborz.

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TOWARDS AN EXPLANATION OF SOCIO-SPATIAL STRUCTURE
OF POLISH CITIES

Social and spatial differentiations have become the subjects of study of many social sciences. Geographers who describe spatial differentiation of social phenomena have been first in trying to describe the relations between spatial structure, understood as spatial distribution of social groups and spatial structure (Morgan 1984). It is presently almost unanimously accepted among the social geographers that there exist mutual dependences between the two structures. Spatial structure is a reflection, or, speaking otherwise, an attribute, of the social structure.

It is therefore not sufficient to ask for the spatial structure of a town or - where, in the town's space, particular human groups are located and where particular phenomena occur. It has, on the other hand, become more important to ask why given human groups concentrate in definite locations within a city.

The purpose of this paper is to present my view on the question outlined above. These considerations are limited to Polish towns, in which population and human artifacts are distributed in a definite manner. Uneven distribution of population and human artifacts, in view of their attributes, gives rise to spatial differentiation. Interests focuses on social characteristics of people and on such features of artifacts which define conditions for residence at a given point of urban space. Spatial differentiation in the distribution of people together with their characteristics, residing in definite conditions, lead to the emergence of definite structures, which are called socio-spatial structures. Thus, the described and explained object here reported on is the town, and more precisely speaking socio-spatial structure of urban space.

Thus, it is of fundamental significance to answer the question whether distribution of social groups is one of the attributes of social position. This question is answered positively in sociology and geography, and in the studies conducted the location of residence of individuals, as well as social groups, is often treated as an independent variable. In my opinion residence location of individuals and of socio-professional groups, as well as their housing conditions are inherent attributes of their social position, to be considered as "prizes". The latter notion appears in the classification of K.M. Słomczyński and W. Wesołowski (1978), here adopted, suggesting that job division becomes the fundamental factor determining social position and leading to a breakdown, according to the degree of preparation of an individual to carry on a given trade, into "outlays" and "prizes".

Urban space is limited. This limitation of space entails a necessity of its sharing. As it is well known the socialist society has adopted the principle of distribution of goods and resources in accordance with the watchword "each one according to his work". Hence the division of space among various social and professional groups, as well as gaining of a better, more advantageous location should occur on the basis of work outlays, and speaking more generally - on the basis of these attributes of social position, which are classified by W. Wesołowski (1978) as outlays.

Distribution of commodities and resources appearing in limited supply always entails conflicts of interests and competition among particular socio-professional groups. In case of towns this concerns first of all competition for space and for particular locations. One can therefore formulate a less general question concerning relations between occupations classified by socio-professional position, income, status and prestige on the one hand and location in space on the other - at given time and the stage of social development.

It can be assumed that the socio-spatial structure of a town, that is - distribution and spatial association of particular professional groups, housing conditions, age groups of population, prestige and status, income, access to power and education - is in fact an expression of contradictions and competition among particular social groups for those values which are represented by space. The analysis of socio-spatial structure of a town does not only give a possibility of gaining insight into the population distribution, but also allows a partial identification of forces contributing to the contemporary structure of the society. It may also help to provide an opportunity to find

the answer to the question as to the significance of location and spatial structures in the formation of other attributes of social differentiation.

Explanation of spatial and social differentiation, as well as their mutual relations requires adoption of some integrating concepts. The role of such concepts can be played by the notions of "interest" and "social conflict".

Explanatory significance of the notion of interest is derived from the possibility of demonstrating the mechanism of social structuration, closely related to the nature of ownership of production means. A hypothetical assumption can here be adopted, according to which the existence of socio-spatial differentiations in Polish towns, with their nature consisting in inequality with regard to satisfaction of housing needs, provides a confirmation, though in the consumption sphere, of incomplete realization of global social interests. Irrespective of the causes of incomplete realization of the model stimulating introduction of the global social ownership of production means, social needs are not being satisfied uniformly which means that interests of not all social groups are realized. Unequal possibilities of satisfying needs of various social groups cause differentiation of interests. Socio-spatial differentiation constitutes an indirect evidence of existence of particular groups having specific interests, since these groups were able to satisfy their location needs in a varying degree, so that these express, according to the terminology of J. Drązkiewicz (1982, p. 189) - group interests.

The search for the principles of social structuration, i.e. identification of particular groups, should be oriented at the "study of organizational relations in the economy, analysis of the socio-professional, income and status structure, as well as the structure related to participation in various social institutions" (Drązkiewicz 1982, p. 182). Fundamentally significant for the determination of social groups having bigger possibilities of satisfying their needs is the choice of objectives of the economy (Drązkiewicz 1982; Narojek 1973), starting with the national objectives down to local objectives at the urban scale. Location of every investment as well as choice of directions of investing divides the society into those who shall have bigger possibilities of satisfying their needs and those whose possibilities with that respect shall be smaller. This concerns, as well, the advantageous location in space and accessibility to better housing conditions. In the situation of significant shortage of housing resources each new housing settlement becomes an object of acute competition. Social structure of such an area is therefore the result of

a competition. This structure reflects the degree of satisfaction of needs of competing social groups, being the functions of their relative strength in a given town. These phenomena can be generalized through adaptation of the notion of spatial conflict.

The notion of spatial conflict should be understood here in such a way that one social group takes a location in the urban space so that another group trying also to occupy this location cannot achieve this aim. Spatial conflict can therefore be treated as a specific case of social conflict. Socio-spatial differentiations and related conflicts are limited, at least partly, by housing policies, that is - by the policies of distribution of flats in the categories of the overall social interest.

In the capitalist system it is the housing market that shapes the mechanism through which production methods and class relations are reflected in the housing differences within towns. The notion of the market, and especially of the housing market, is used as an integrative and explanatory concept referring to spatial and social differentiations and their mutual relations.

The counterpart of the market mechanism is represented in Polish towns by the housing policy, understood as a system of legal regulations and by the formal and informal decisions of administrative authorities determining the accessibility of particular social groups to flats of definite type and location.

A potential explanatory significance may also be attributed to the notion of "housing classes" suggested by J.A. Rex (1968). The concept of housing classes was also used, though in a modified form, to describe the situation in the socialist countries (Szelenyi 1983; Hegedus and Tosics 1983). According to I. Szelenyi the position of an individual in the housing system is determined to a greater degree by the position occupied in the redistribution process than by the position on the housing market. In the approach presented by J. Hegedus and I. Tosics (1983) the notion of housing class encompasses the type of residence (ownership form and market value) as well as the social groups ascribed to this type.

It seems highly probable that in the case of Polish towns this concept might also have a certain explanatory significance. Competition and conflict arising in acquiring apartments of definite location take certainly place among individuals, but whether this applies equally to population groups, socially and professionally clearly defined, is a hypothetical question.

Some information on the thus formulated question is provided by studies on codependence of housing conditions and the features describing social differentiation (Kozlik 1975; Jocz 1983; Kozłowski 1985; Wojciechowska 1987).

When analysing the relations between housing conditions and such characteristics of social condition as education, social origin, wealth, age and profession, A. Wojciechowska (1987) concluded that over the last twenty years essential changes have occurred in the strength of particular interdependences. In 1980, the level of housing conditions depended via the strongest relation upon the socio-professional position, then upon education, income and finally upon social origin.

In 1956 the dependence of housing conditions upon education, and in 1976 - upon income was strongest. The fact that socio-professional position gained the first rank with that respect at the end of the 1970s resulted, according to A. Wojciechowska (1987), from the emergence of antiegalitarian redistribution mechanisms for various social goods, including flats. This concerns, in the opinion of A. Wojciechowska, the accessibility to housing gained in the manner contrary to the officially pronounced principles, and facilitated by professional position, high post, or behind-the-scenes manipulations. Consequently, social groups, distinguished by their privileged situation with regard to acquisition of better housing standards, have been formed.

Housing policies and strong ownership division of housing resources is correlated with the socio-professional structure of population, position on the labor market and its political as well as financial and property circumstances. Thus housing class can be interpreted as an inter-stratum or intra-stratum interest group, but socio-spatial differentiation appears most probably in Poland on a lower level of generalization.

Hypothetical explanation can be constructed on various levels of generalization and that is why they form just a set, and not an ordered system of explicative statements having together the nature of a hypothetical - deductive theory.

The basic assumption postulates the existence of differentiated socio-spatial structures which have been formed as a result of the action of various social, economic and political forces. This assumption can be complemented by several others, such as, the one which stipulates that on the most general level of explanations the fundamental processes shaping the socio-spatial structures depend upon the level of development of productive forces and production relations.

After World War II Poland was characterized by a low level of development of productive forces which, together with the existing production relations, was inherited from the capitalist. An economy assumption was adopted then, according to which the basis for the explanation of the economic, social, and political transformation was ascribed to the ideological vision of the socialist society. Over the period of 40 years this vision has undergone significant modification, both as to the ultimate goals and the means to achieved them. Similarly, the degrees of acceptance, or the resistance of particular groups of the society, with regard to the global and partial development goals have changed over time. Still, not all the elements of this vision can be deemed to have essential significance for the explanation of the socio-spatial differentiations within towns. According to the principles of building of the socialist society, nationalization of production means had fundamental significance. Nationalization made it possible for the governing group to perform the choice, on the national scale, of the goals of economy in accordance with the ideological prerequisites and with the global social interest. Among the goals of economy the industrialization strategy had the basic significance, playing not only economic, but also political and ideological roles.

Industrialization, being a complex set of technical and economic phenomena decided on transformations of social structure through creation of new labor division principles and formation of new foundations for the social hierarchy. Industrialization has become the most dynamic process forming the new social structure, especially insofar as this policy encountered at the beginning a widespread social support.

Requirements of industrialization process served to determine the whole system of quantitative and spatial allocation of housing resources for particular professional groups. Industrialization has not been a uniform process. In the particular stages of this process its influence upon the transformation of urban structures has been changing. The force of influence of industry and the rate of structural transformations have depended upon the scale of new outlays in the relation to the scale of "resistance" of the assets already in place and to the strength of traditional value systems of the urban societies in question.

The choice of this form of economy, involving forced industrialization, caused significant, and increasing over time, delay of urbanization in relation to the progress of industrialization. The direct effect of this phenomenon

was growing shortage of housing resources in urban areas. These disproportions had a number of essential consequences for the urban structure.

First, they constrained to a large extent the material basis for the conduct of more egalitarian, conflict-avoiding policy of locating particular social groups. Secondly, the scarcity of housing resources often forced radical departures from the egalitarian principles. Location within the urban space were not granted depending upon these attributes of social position, which were considered "outlays", or upon the necessities related to improvement of standard of living, but rather upon the attachment to particular interest groups. Strength of these groups in their competition over the spatial location and housing conditions depend upon their political significance and the place their numbers occupied in the labor division. Accessibility of housing resources to individuals depended often upon the indispensability of members of particular professional groups for implementation of the assumed key economic goals of the town in the given time period. Third, scarcity of housing resources, in condition of strong competition over access to new resources, contributed to essential stabilization of the once formed socio-spatial structures.

Housing policy did limit, but not liquidate the interplay involving the process mentioned above. Changes of this policy according to the overall national interest (the egalitarian principle) proceeded with a delay with respect to the activities of interest groups, who were making use of gaps and inconsistencies in the policies. Housing policies were, anyway, often subject to the interests of such groups. Thus, in the differentiated space of Polish towns one can perceive the existence of spatially defined interest groups having the nature of housing classes.

Study methods applied to date allowed primarily registration and description, and only to a limited degree made it possible to search for the answer as to how socio-spatial differentiations in towns appeared, why these differentiations persist and why still new ones do emerge. When trying to explain the origins of the urban structure described one can propose a hypothetical system of explanations.

Among the conditions and causes, which created and which now maintain the socio-spatial structures of towns, not all social and political processes can be considered of equal significance. Depending upon the level of generality it is possible to use various, increasingly detailed and empirically verifiable, causal notions.

The following hierarchy of processes and notions composed of three level of generality, are adopted here:

- Ideological level

Basic significance must here be attributed to the ideological vision of creation of the socialist society. It is on the ideological level that decisions concerning nationalization of the means of production and the choice of overall economic goals via industrialization were undertaken.

- Economic level

Industrialization, by fulfilling economic functions, has become the main process, through which ideological vision was being implemented. Subordination of the whole economy to the requirements of industrialization process had relatively quickly resulted in the growth of many disproportions in the life of Poland. One of such pronounced imbalances was the increasing lag of urbanization in comparison with the pace of industrialization. This delay has become one of the major causes of competition for housing resources within urban space. On the economic level new social structure has also been formed, under the influence of the industrialization process as well.

- Living conditions level

It is only on the level of living conditions that it is possible to study, with methods characteristic for geography, the effects of processes generated at the levels of ideology and economy. When describing socio-spatial structures in towns at the level of living conditions I treat them as material reflections of progress as well as contradictions appearing in realization of the goals set forth on the ideological and economic levels. It is at this level that the effect of decisions resulting from economic and ideological prerequisites can be empirically grasped and verified. Among these decisions the fundamental significance in shaping of socio-spatial structures had the industrialization process and the whole process of transformations of housing policies. Industrialization, being the fundamental process transforming social structure of towns, brought with it important progress but also gave rise to many contradictions. The main source of tensions and contradictions, which greatly contributed to the appearance of socio-spatial differences were divergences of the share of the GNP allocated for expansion of productive forces and for improvement of population's living conditions.

In Polish conditions public mass housing construction was not satisfying the increasing needs. Housing resources have become scarce goods and as such have become the object of competition among the particular social groups, and the access to these resources has become one of the factors in formation of ad hoc interest groups. Better or worse housing conditions and flat location become partly an indicator of political strength of particular social groups.

Socio-spatial differentiations existing in towns constitute the material evidence of contradictions of the socialist industrialization, i.e. the delay in creation of adequate living conditions for the population, in comparison with outlays on production of the means of production. This caused directly a stratification of the urban population and the appearance of interest groups with strongly differentiated housing conditions.

The second factor beside industrialization having direct influence on the formation of differentiated socio-spatial structures is housing policy. This policy, in an even greater degree than the industrialization process, has been undergoing constant modifications. When considering the influence of housing policies on the shaping of socio-spatial structures basic significance should be attributed to the appearance of two contradictory tendencies in these policies. I mean here the tendency of the egalitarian distribution of housing conditions and the tendency towards conducting selective housing policy, i.e. granting privileges to certain social and professional groups.

In formation of structures and socio-spatial diversifications the following criteria of access to housing resources, in force during the whole post-war period were of significant influence:

the first criterion has been the social value of labor force, related to the nature of the profession exercised and the actual job. Current value of the labor force was often determined via labor market. Flats were more easily obtained by these persons who represented professions in short supply at a given stage of development of a town;

second criterion has been related to the position in the political-economic and administrative hierarchy of a town, together with the system of informal connections and access to information;

third rank has been occupied by the criterion of previous housing conditions and the number of family members;

fourth rank has been occupied by financial situation of the family;

fifth criterion is constituted by the length of the period of residence in a given town and the time of expectation of a new flat.

When trying to answer the question concerning the origin of urban socio-spatial structure described by geographers and sociologists, one can refer to the whole sphere of "external" conditions, in which these structure appeared, or to the sphere of needs, attitudes and preferences of the urban population. It is also possible to provide a complex explanation referring to both these spheres simultaneously.

Within the sphere of external conditions the most important for explaining the socio-spatial differentiations are undoubtedly these phenomena, whose roots could be looked for at the levels of ideology and economy. I would like to indicate here three groups of phenomena.

The first group is constituted by the crisis in housing caused by the overly development of productive functions in towns in comparison with the residential function and by the change of family pattern, that is, a transition from the multi-generational family, typical of rural communities, to the one-generation or two-generation family pattern typical of the urbanized society.

The second group of originating phenomena is related to housing policy, which seeks to attain two contradictory goals: the equalization of housing conditions and selective privileges to chosen social groups, as well as formation of the system of criteria for accessibility of flats.

The third group of phenomena constituting the sphere of external conditions relate to the quality of housing environment, formed in the historical development of a town. On the other hand, these elements of the sphere of needs, aspirations and preferences gain the greatest significance which were generated at the ideological and economic level as well. This concerns first of all these forces, which were the causes of formation of a given social structure. Acquisition of a specific position in the social structure was linked with the tendency to attain a certain standard of living, and a corresponding location within urban space, which has been becoming increasingly an attribute of the social position.

An essential significance in determination of needs and aspirations of urban dwellers is also attributed to the life cycle, although this phenomenon is to a lesser degree generated by ideological and economic factors. Depending upon age and degree of professional activity, particular inhabitants of towns change their location as well as housing needs.

In the conditions of Polish towns there has continuously appeared the dialectic contradictions in the course of events and processes belonging to the sphere of conditions, on the one hand and to the sphere of need, on the other. These contradictions were undoubtedly the main platform on which the process of formation of differentiated socio-spatial structure has been taking place.

The fundamental feature of this process is the permanent conflict around winning of the most advantageous location within the urban space. The image of socio-spatial structure of a town is a result of the outcomes of the competition mentioned it also indirectly demonstrates the existence of interest groups. Housing policy, being to a large extent a mediators' tool, created in fact new differentiations and often led to a petrification of once created socio-spatial structures.

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WDN. Zam. 173/90 n. 400 egz.

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