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DEMOGRAPHIC PROCESSES IN SUBURBAN ZONES IN SOUTHERN
POLAND

The problems of the suburban zone, the changes in its functions and structure are the subjects of researches in different sciences, including economic and social geography. The theoretical interest is commensurate with practical significance of those problems, for urban problems can only be solved if the town is taken together with the suburban areas around it. Under the impact of the town, these latter undergo various dynamic processes and this often results in the urbanization of the suburban belts. The study of such processes must essentially consist not only in a statical assessment of the degree of transformation of the zone but also in grasping the transformations in their progress.

Out of the wide gamut of issues involved in the transformation of suburban zones I have picked in this study the demographic-social problems as those that constitute the germ of subsequent settlement and economic changes which eventually lead to a partial or full urbanization of the suburban areas. To illustrate my argument I have taken the fringe areas around Cracow, Bielsko-Biała, Nowy Sącz and Tarnów - all in southern Poland but which develop in different natural settings and represent different scales of employment and economic potential. These towns too display different types of effect of the town on its hinterland.

The development of the town and its suburban zone is always accompanied by uninterrupted processes of integration of population. They occur not only in the demographic or socio-occupational aspects but in the cultural aspect as well, and they encompass more and more rural areas in them. The extent to which those "multifunctional rural areas (Kostrowicki, 1976) change is in any given case proportional to the size of the central town and to its economic potential, yet the socio-demographic and economic background of the areas that come under the advancing influence of the town also determine the depth of the changes. The demographic processes taking place in the fringe of the urban centres largely account for the population developments in the entire agglomeration. One distinctive feature of the suburban zone is that it maintains a vivid, multifarious and direct contact with the central town which affects the growth rate of the town's population development (Dobrowolska, 1964).

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The suburban zone is an area of intensive change in the demographic and socio-occupational structures induced by the central town and by endogenous local factors. The impact of these latter, though significant, has not been fully acknowledged in geographic, economic or planning studies. How important the endogenous factors really are can be seen from the structural differences that exist between any typical agricultural-residential hinterland of a big or medium-sized town and the urbanized areas in the agglomerations. In the former, change is induced by the demographic and economic potential of the town itself, in the latter we have to do with the joint impact of two influences of different intensities and hence with different effects.

The town's own requirements have always had an effect on the development of its hinterland and thus on the basic interests of the population of the suburban zones. That development used to be either purposefully organized and managed by the town (which is essentially what the historical contention of the unity of the town with its hinterland says) or proceeded spontaneously producing sometimes adverse effects in the suburban zone. It is to be pointed out in this connection that even today the development of suburban zones sometimes gets out of control and may not exactly meet the requirements of the town itself. This is especially frequent in the hinterland of the rapidly developing urban centres and is almost the rule in the area of influence of big labour-intensive industrial investment projects.

Demographic change in the suburban zones and the advance of industrialization are connected by a close relationship: the demand for labour force correlates strongly with the inflow of population. Those processes result in the territorial expansion of the towns and in including a number of suburban villages and residential settlements functionally linked to the urban labour market into the town's own territory. A recent case of this is the town Bielsko-Biała, which increased its total territory by 75 km², or by 135 %, after a small engine car factory FIAT 126 p had been localized on its northern outskirts and it had risen to the role of centre town of a new voivodship. Similar territorial expansions were noted after 1975 in the other three towns - Cracow, Nowy Sącz and Tarnów yet only at Nowy Sącz was it about the size of that of Bielsko-Biała.

The studied suburban zones are marked by high population densities, which depend strongly on the level of urbanization of the settlement and less so on the size of the town itself. A comparative analysis of population densities indexes as calculated for 28 communities of the four discussed zones discloses the highest densities where, in addition to the influence of the big town, we face additional endogenous elements, mostly in the form of local industrial plants. This rule confirms itself in all studied suburban zones as well as the fringes of the industrial centres in the Katowice, Częstochowa and Opole agglomerations (Rajman, 1969).

The studied suburban zones are areas of intensive demographic change due to natural reproduction and migration. The changing intensities of the fundamental demographic processes produce clearly varying population number rates in

suburban zones as well as profound structural changes. This applies above all to changes in the age and sex structures which are determined by the components of natural and migratory movements. These movements and demographic structure remain in a feedback relationship, for demographic structure affects the course of the movements and these in turn tend to transform the elements of demographic structure.

One characteristic feature of the demographic structure of the population of suburban zones is the high percentage of females. The sex structure there, which is very close to that of the urban sex structure and basically different from the rural sex structure pattern, results less from natural than migratory movements. The suburban zone is an area which suffers from a steady outlet of males who leave if for good move to the urban-industrial centres. Migration movements of females to the suburban zone correlate strongly with the profile of the town's labour market. This is disclosed, for instance, by the high feminization of the populations of the suburban zone of Bielsko-Biała, and partly also of Cracow. These towns offer a great number of jobs for women (Bielsko in its traditional textile industry; Cracow in the electric-machines and food industries and in the widely expanding service sector).

The feminization coefficients determined for the four studied suburban zones differ strongly from, the nation-wide average for Polish villages (102,6 females per 100 males in 1974). They are 107,1 in the suburbs of Bielsko-Biała, 106,7 in those of Cracow, 105,5 in those of Nowy Sącz, and 105,8 in those of Tarnów, respectively. The coefficients determined for three towns (save that for Tarnów) are higher than the average for the rural areas of the respective voivodships, which is perhaps indicative of the deforming role of urban centres.

There are extreme cases of excessively high percentages of females (such as the community Mogilany on the Cracow Plateau with 125,2 females per 100 males or Lisia Góra north off Tarnów with 113,5 females). These coefficients suggest that the agricultural-working areas of the studied suburban zones have entered the phase of developing a "highly abnormal age structure".

The above-given examples of the feminization coefficients indicate the specific place of the studied suburban zones in the territorial patterns of the sex structure. The suburban villages develop age structures more and more similar to those of the urban populations. This is indirect evidence of the urbanization processes taking place in those areas as viewed in the demographic and social aspects.

These deformations of the sex structure of the suburban populations are matched by changes in their age structures. Migration movements are the decisive-factor in this respect. They account for the fact it is mainly young people who tend to settle near the towns but who moreover tend strongest to move on to the urban centres. Hence the age structure patterns in the suburban zones result from two types of migratory movements - a centripetal one (toward the centre), and another which brings the population of the more remote villages

closer to the towns; moreover, as in any other community, it is an effect of natural movement.

The populations of the suburban zones considered here differ significantly as regards their age structure. If we divide the age classes into three principal classes we can include each of the studied zones in one of two different types. The zones of Bielsko-Biała and Cracow are characterized by low percentages of young people in them, higher percentages of people at production age than the average for Poland's rural areas in general, and high percentages of people at retirement age. The Nowy Sącz and Tarnów suburban zones developed age structures different from that one; in both of them high percentages of young people suppress those of people at production and retirement age to below the national averages for Poland's rural areas. The structures that exist at the Bielsko-Biała and Cracow suburban zones are unpropitious for the future population reproduction, as shown by the bilateral coefficient indicating the relations of young people to the retirement-age group (Table 1). Equally unpropitious is the age structure as regards the urban and local demands for labour force. The low percentages of young people promise little hope for any major supply of labour force, and hence it will have to be called in from more remote areas that dispose of labour surpluses.

The Nowy Sącz and Tarnów suburban zones which represent different structural types have potentially better proportions of their age groups. The low percentages of the production-age group there is no doubt due to the outflow of those people to the urban centres, yet the relatively high reproduction group certainly secures both an extended population reproduction and the needs of the labour market.

The high proportion of people at retirement age (the data are for 1970), which is indicative of the highly advanced ageing of the suburban population, is an upsetting circumstance. In a number of villages people at retirement age or older account for as much as 12 % of the total population in the area, which points to a highly advanced ageing of the local populations. One factor that determines this specific pattern of age groups is the migration-induced population loss which is mainly due to the absorptive affect of the urban labour markets. It is mainly people in their early production-age years, including secondary-school pupils, that move over to the towns. This has an indirect effect on the age structure of the entire population as well as on the course natural movement tends to take.

Of course the mean indicators determined for the suburban populations studied here do not reflect the actual patterns of the age and sex structures, yet they give a good enough idea of the trends of change. Analytical studies have shown that it is the older structure, the one involving the emigration of young people to the towns, which is typical of agrarian villages situated on fertile soils. Working-agricultural villages display a younger structure, which is closer to that averaged for the entire zone, whereas worker villages display patterns of age groups close to that of the urban relations. The territorial and typological dis-

tribution of the indicators of the demographic structure confirms therefore the view that the populations of suburban zones gradually tend to develop into urban communities.

The course of natural movement, as well as analyses of demographic structures, permit to class the studied suburban zones with one of two different types. The first type comprises the hinterlands of Bielsko-Biała and Cracow with their distinctly lower rates of natural movement, while the second type embraces those of Nowy Sącz and Tarnów.

The spatial distribution of the birth rates confirms the demographic-statistical regularity that female occupational activity correlates adversely with the fertility rate (Czarkowska, 1974). The process of urbanization lowers distinctly and permanently the reproduction rate, as confirmed by the birth rates recorded in the suburban villages of Bielsko-Biała and Cracow. These two towns, as mentioned before, offer more jobs to women and better possibilities for training, societal advancement and a quicker diffusion of information, new ideas and cultural patterns. Not insignificant is the older age structure of the populations of those most strongly transformed zones.

The rural fringe around Bielsko-Biała, which has a high and uniform level of urbanization of settlements (with more than 80 % of nonagricultural population), displays no significant differences in the spatial distribution of the indicators of natural increase. Except for the worker-peasant community of Stare Bielsko (17,3⁰/oo) natural increase takes values close to the mean for all villages of the Bielsko voivodship (11,6⁰/oo).

A more differentiated distribution of the coefficients of natural increase is characteristic of the extensive though unevenly urbanized suburban zone of Cracow. The highest rates exceeding 21,5⁰/oo have been recorded in the agrarian communities in the valley of the Vistula as well as in the closest vicinity of the satellite town Wieliczka. The agricultural communities situated in the Cracow and Miechów Upland with much older populations have lower birth rates (from 15,9⁰/oo to 18,8⁰/oo). Since death rates strongly correlate with the age structure those communities, which encompass the urban territory of Cracow from the north, display no high natural increase (from 3,7⁰/oo to 9,3⁰/oo). It is remarkable that natural increase shows rates higher than the mean for the villages of the Cracow voivodships (which is 10,0⁰/oo per year) in but three communities of the suburban zone around Cracow.

Entirely different are the elements of natural increase in the fringe around Nowy Sącz and Tarnów. These zones are characterized by different levels of urbanization of rural areas (28,2 to 68,8 % of the nonagricultural population in the Nowy Sącz suburban zones, and between 45,2 and 72,7 % in those of Tarnów) and by younger age structures (Table 1). Higher rates are to be found in the Nowy Sącz zone where the birth rates are above 22,0⁰/oo, to attain their maximum at 31,7⁰/oo in the community Nowy Sącz. Due to the lo-

wer death rates in the latter the natural increase rates there are high too: except for one community, they surpass the mean for the rural areas of the Nowy Sącz voivodship (which is 15,4⁰/oo).

The Tarnów suburban zone displays a uniform level of birth rates (except for the community Wierzchosławice, which has 18,7⁰/oo, the birth rates there are slightly above 22,0⁰/oo). Natural increase there is also high; the mean for the villages of the entire Tarnów voivodship (12,8⁰/oo) is surpassed in all communities save one.

Our analysis of natural movement and of its constituent elements points to an extended reproduction of the population which is functionally linked to the town. Nowhere in studied zones do the indicators of demographic dynamics fall below the 2,00 level. In the biologically toughest zone of Nowy Sącz they attain as much as 3,10. Yet the overall impact of natural increase is cushioned by lively migration movements, connected mostly with the outflow of the young rural population to the towns.

The studied suburban zones are characterized by high population mobility, which is mainly due to the high attractiveness of the main town and the spatial economic structure of the region in which they lie. An interpretation of the coefficient of migration balance, which is an aggregate measure, has shown that only the Bielsko-Biała zone has had a positive migration balance. In the remaining zones migration appears to be a factor inhibiting the demographic development in the individual settlements.

As there are no official statistical data for inter-community migration, this part of the present study is based exclusively on materials collected during direct field work. It comprised altogether 26 villages, including 14 villages in the Cracow zone and 6 villages in those of Nowy Sącz and of Tarnów. The collected data refer to migration movements in 1971-1976 and hence they coincide with the previous analysis of natural movement (Table 3).

The emigration of the rural population strengthens the ageing of the suburban village populations and has an adverse effect on natural movement.

To be true, it is also primarily young people who immigrate into the suburban areas, yet due to the adverse migration balance that immigration adds but little to the rejuvenation of the age structure. In the first phase that migration also raises the birth rate, as evidenced by the case of the Nowy Sącz area, yet all in all those migrations tend to curb the natural movement.

One characteristic feature of the horizontal migration in the studied suburban zones is a high migratory mobility which attenuates the effect of those movements. For instance, the ratio of immigration from Cracow into the suburban villages to the reverse migration is 1:2,95, which is evidence of the high attractiveness of Cracow relative to its own zone. Similar ratios have been recorded in the zones of Nowy Sącz and Tarnów, though these are less closely

linked to their towns. In contrast to this direction, migration within the same communities is in equilibrium (Table 4).

The intensity of emigration to the central town depends on its size and attractiveness. Field studies have moreover shown that a great many of immigrants to the towns had begun their "urban life style" with daily commuting to work.

As regards the immigration of population from suburban zones into the central town, two categories can be distinguished: migration in phases, and gradual migration. Migration in phases consists in waiting in the suburban settlements for the moment of definitive emigration, which is almost always connected with getting a flat in the town. This type of immigrants bring with them different life-style patterns and represent different capacities of adjustment to life in big towns. The population loss due to migration in phases is partly offset by immigration of people from the central town and partly by immigration of population from the more remote villages to settlements closer to the town boundaries. The net outcome of this type of migration is however adverse.

Gradual migration comprises people from more remote settlements who live temporarily in worker's hostels and young people attending different types and levels of vocational schools in the towns. The case of Cracow, especially its youngest quarter Nowa Huta, shows that most of the migrants settle after some time in the town itself or conveniently in suburban villages closest to it (Wódz, 1971).

A characteristic type of emigration from the suburban zones is intraregional migration, which is not directed to the central town (Table 4). Nearly a half of that group of people settle within their own community seeking most often just a more convenient access to the town (movements to villages situated at the main roads leading to the town). A slightly different pattern of intraregional migration can be noted in the zone of Nowy Sącz, which gives every year part of its demographic potential away to the tourist-recreational and health-resort centres (this is mainly emigration by young females).

The field studies have furthermore shown that also people from more remote regions of Poland arrive at the suburban villages. In the Cracow suburban zone this category of people account for 41,5 % of all immigrants, in that of Tarnów for 25,4 %, while in that of Nowy Sącz for 22,8 %. This direction of migration displays a positive balance only in the case of the Cracow suburban zone, which is no doubt due to the higher attractiveness of Cracow than of Tarnów or Nowy Sącz.

The rate of population growth is an aggregate indicator of development of any given settlement system, including the suburban zone. This indicator reflects the total of all socio-economic changes generated by the process of urbanization. Out of the studied suburban zones only the hinterland of Bielsko-Biała displayed in 1971-1976 a positive balance of real growth, which was higher

than the natural increase. This is clearly indicative of the immigrational type of this zone. Over the same interval, the hinterlands of Cracow, Nowy Sącz and Tarnów increased their populations by less than the total natural increase. In the Cracow zone the yearly migration loss reached 2,7 ‰/whereas in the rural areas it was 7,8 ‰, in that of Tarnów 11,6 ‰ and in that of Nowy Sącz 19,0 ‰, and thus were higher than the natural increase rates. Hence it follows that the villages of those zones keep losing considerable portions of their populations, mainly to the central town.

Our analysis has shown that demographic processes in suburban zones are strongly determined by the impact of the central town. Their full interpretation is therefore possible only if we treat the town together with its hinterland, for the demographic potentials of those areas intertwine and complement each other.

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Demographic structure in researched suburban zones

Table 1

Suburban zone	Groups of age			0-14	Female coefficient
	0-14	15-64	over 65	over 65	
Bielsko-Biała	27,2%	62,3%	10,5%	2,59	107,1
Cracow	25,9	64,3	9,8	2,64	106,7
Nowy Sącz	37,8	54,4	7,8	4,86	105,5
Tarnów	31,0	59,9	9,1	3,41	105,8
Polands rural areas	29,7	61,2	9,1	3,25	102,6

Rates of demographic dynamics in suburban zones
(average for period 1971-1976 in ‰)

Table 2

Suburban zone	Births	Deaths	Natural increase	Demographic dynamics coeff.	Migrational coeff.
Bielsko-Biała	19,2	7,5	11,7	2,55	4,7
Cracow	18,4	9,6	8,8	1,98	-2,7
rural areas	19,3	10,1	9,2	2,00	-7,8
Nowy Sącz	26,1	8,3	17,8	3,15	-19,0
Tarnów	22,0	7,9	14,1	2,78	-11,6
Southern Poland rural areas	21,7	9,3	12,4	2,33	x

Age structure of rural migrants

Table 3

Suburban zone	Groups of age of emigrants in %			
	0-14	15-39	40-64	over 65
Cracow	24,2	61,2	9,8	4,8
Nowy Sącz	23,7	64,2	8,5	3,6
Tarnów	21,0	64,4	8,7	5,9

Participation of migrants in immigration and emigration in %
/1971 - 1976/

Table 4

Suburban zone	Direction of migrations					
	Main town		its region		other regions	
	I	E	I	E	I	E
Cracow	20,6	49,9	37,9	29,7	41,5	20,4
Nowy Sącz	11,1	24,0	66,1	40,3	22,8	35,7
Tarnów	15,3	40,2	59,3	29,9	25,4	29,9

DEMOGRAFSKI PROCESI V OBMEŠTJIH NA JUŽNEM POLJSKEM

Obmeštje je območje intenzivnih sprememb demografske in socialno-zaposlitvene sestave prebivalstva, ki jih povzročata centralno mesto in notranji lokalni faktorji. Demografske spremembe v obmeštju in industrializacija sta tesno povezana: potreba po delovni sili ima za posledico dotok prebivalstva.

Obravnavana obmeštja so gosto poseljena, kar je posledica stopnje ureditve naselij in manj velikosti mest.

Ena od potez demografske sestave prebivalstva v obmeštjih je visok delež žensk, kar je posledica odseljevanja moških v mesta oziroma industrijska središča. Podrobne raziskave so pokazale, da je ostarela sestava prebivalstva lahko tudi posledica odseljevanja mladih v mesta; to je značilno za kmečke vasi na rodovitnih prsteh. Mlajša starostna sestava prebivalstva je v vaseh z delavsko-kmečko sestavo gospodinjstev. Le-ta je precej podobna starostni sestavi prebivalstva celotnega obmeštja. Vasi z izrazito prevlado nekmečkega prebivalstva imajo starostno sestavo prebivalstva, ki je močno podobna mestni. Tipološka in prostorska razporeditev kazalcev demografske strukture potrjuje mišljenje, da se prebivalstvo obmeštij postopno razvija v mestne skupnosti.

Analiza naravnega gibanja in njegovih elementov kaže na razširjeno reprodukcijo prebivalstva, funkcijsko povezanega z mestom. Nikjer na obravnavanem območju ne padejo kazalci demografske dinamike izpod 2,00.

Velika mobilnost prebivalstva obmeštij na južnem Poljskem je predvsem posledica privlačnosti glavnega mesta in prostorske strukture gospodarstva lokalne regije. Razčlenitev migracijskih saldov je pokazala, da je imelo le obmeštje Bielsko-Biala pozitivni migracijski saldo. Za ostala obmeštja so se migracije izkazale kot zaviralec demografskega razvoja v posameznih naseljih.

Značilna poteza horizontalnih selitev v analiziranih obmeštjih je velika selitvena mobilnost, ki pa zmanjšuje učinek teh gibanj. Na primer razmerje med doselitvami iz Krakova v obmeštne vasi in med nasprotnimi migracijami je 1 : 2,95, kar govori o veliki privlačnosti Krakova za njegovo obmeštje. Podobna razmerja so bila ugotovljena za Nowy Sacz in Tarnów, čeprav sta njuni obmeštji manj tesno povezani z mesti.

Moč odseljevanja v centralno mesto zavisi od njegove velikosti in privlačnosti. Terenska proučevanja so pokazala, da so številni doseljenci v mesto začeli živeti "mestni način življenja" z vsakodnevnim odhajanjem na delo v mesto.

Pri doseljevanju prebivalstva iz obmestij v središčno mesto ločimo dve kategoriji: migracijo v fazah in postopno migracijo. Pri "migracijah" v fazah udeleženci čakajo v obmestnih naseljih na ugoden trenutek, da se preselijo v mesto. Ta trenutek največkrat nastopi, ko kandidat dobi v mestu stanovanje. Postopna migracija vključuje ljudi iz bolj oddaljenih naselij, ki nekaj časa živijo v delavskih domovih ter mladi ljudje, ki obiskujejo poklicne šole različnih vrst in stopenj.

Terenska raziskovanja so nadalje pokazala, da prihajajo tudi ljudje iz oddaljenih poljskih pokrajin v obmestne vasi. V krakovskem obmestju je od vseh doseljenih kar 41,5 % take vrste, v obmestju Tarnówa 25,4 % itd.

Analize so pokazale, da so demografski procesi v obmestjih močno določeni z vplivom centralnega mesta. Njihova celostna razlaga je zato možna le v primeru, da obravnavamo mesto skupaj z njegovim zaledjem, saj se demografski potencial obeh območij prepleta in dopolnjuje.