POPULATION AGEING IN THE PODKARPACKIE VOIVODSHIP IN POLAND

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Abstract: *The population ageing state and dynamics in the south-eastern Poland (the Podkarpackie Voivodships) in 1988-1998 are presented in the paper. Based on the intensity and variability of the elderly-to-youth coefficient (the ratio of population aged 60 and over size to the size of population aged 0-19), an attempt was made to determine the areas selected on the towns and gminas basis endangered with demographic senility. The advancing process of population ageing was found in towns while this process in the country was found to be stopped.*

Key words: *population ageing, ageing hazard areas, age index*

The process of population ageing is the result of qualitative and quantitative transformations that take place among individual age groups of population, conditioned by several demographic and socio-economic factors. The direct factors include birth rate, death rate and population migration (Betts 1998, Caselli 1990, Keyfitz 1968, Kinsella 2000, Rosset 1959, 1967, Strzelecki and Witkowski 1991, The UN Population Division... 2000). The indirect factors affecting population ageing include the society well-off level, promoted family model, vocational activity of women, health-care and social welfare system level, population education, state social politics. The areas with population ageing undergo not only demographic changes but also economic and social ones. This results in changes in the structure of consumption, increase of demand for certain services (e.g. in the field of health care and social welfare), decrease in vocational activity, increase in costs incurred on means of living for growing post-production groups, change in labor force structure, family and households (Chesnais 1990, Frątczak 1992, Gonnot et al. 1995, Pinelli and Sabatello 1995, Kuciarska-Ciesielska 1999, Johnson and Climo 2000). All this forces the state to adjust the infrastructure and financial expenses to various areas of social and economic life.

Population ageing was first experienced by highly developed Western European countries where a demographic shift resulted in low birth and mortality rates (Holzer 1994, Heigl i Mai 1998). Currently, the fastest ageing societies can be found in the Central and Eastern Europe, where difficulties of the economic transformation period manifest themselves in a dramatic reduction of the natural growth rate (Kurek 1998). In Poland, areas of advanced age structure are not just limited to villages but also include towns and cities where difficult job market has resulted in lower in-migration and birthright rodności (Długosz 1997, 1998, Długosz, Kurek 1997, Nowakowska i in. 1991).

The Podkarpackie Voivodship is located in the south-eastern Poland and covers 5,7% of the country area. The region populated with 2.122 million of inhabitants is a relatively average populated area with 118 persons per sq km, against 124 persons per sq km in Poland. Its level of urbanization is rather low (41.2%) with the country average of 61.8%. The greatest cities of the region are Rzeszów (162,000), Stalowa Wola (71,814) and Krosno (49,227). The region is characterised by single-functionality of many small and medium-size industrial centres where difficulties in restructuring make solving social and economic problems impossible. Rural areas feature adverse agricultural structure, high proportion of subsistence farming, overpopulation and large surplus of workforce in farming, high unemployment, further aggravated by the return of farmers/labourers (Malisiewicz 1999).

The research aimed to present the progress of ageing in the Podkarpackie voivodship. An attempt was also made to identify areas exposed to demographic old age, i.e. ones with very high proportion of old people and low proportion of children and youth.

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Demographically exposed areas are normally associated with problem areas in other aspects of social and economic life (Jelonek 1986). Therefore, the two years selected for investigation include 1988, to show the progress of the phenomena in question just before the start of the Polish transformations, and 1998, to make use of the latest available data. The project covered 45 towns and 144 *gminas* (smallest local administration unit) bringing the total units involved to 189, and was conducted as on 1 January 1999. The input data was taken from the National Survey tables showing the actual population by age as in 1988 recalculated as for 31 December 1998, and from current records of population broken down by age, towns and gminas in 1998. All data was retrieved from the Central Statistical Office in Warsaw.

Ages 0-19 and 60+ were adopted as criteria for the population ageing analysis. The demographic old age analysis involved an index (age index) of the oldest group to the youngest group (number of 60+ per 100 of 0-19s). The larger the index value the older the population (Kurek 2000). Cartogrammes were selected to present the spatial pattern of the age structure broken down into six categories. The ageing rate was determined with the age index changes during 1988-98.

An attempt to identify the areas exposed to ageing was based on the value and growth rate of the age index. To do that, the 1998 index was divided into three groups around the average for the whole area (Tab. 1) and three types the demographic old age were defined, high (top two categories of the cartogramme), medium (middle two categories) and low (the bottom two categories). Also the growth rates of the index during 1988-1998 were divided into three groups around the voivodship average (Tab. 2).

Table 1 *The level of population ageing in 1998*

The level of population ageing	The type of population ageing	Elderly-to-youth coefficient
High	I	above 60
Middle	II	40-60
Low	III	below 40

The dynamics of population ageing process in 1988-1998

The dynamics of population ageing	The type of population ageing	Elderly-to-youth coefficient variability
High	a	above 8
Middle	b	0-8
Low	c	below 0

Table 3 *Population ageing hazard level*

Population ageing hazard level	Type	Subtype	The level of population ageing	The dynamics of population ageing
High	I	Ia	high	high
		Ib	high	low
		Ic	high	negative
Middle	II	IIa	middle	high
		IIb	middle	low
		IIc	middle	negative
Low	III	IIIa	low	high
		IIIb	low	low
		IIIc	low	negative

Group one included units with negative growth, i.e. units where the population was growing younger. The second group included units with positive growth rates but below the voivodship average, while the final group had higher than average growth rates indicating fast-ageing population. Taking into account the current ageing in 1988 and the growth rates during 1988-1998, three main types of areas were defined, featuring high, medium and low risk of demographic senility (Tab. 3). Each type was further broken down into three subtypes with different ageing rates.

During 1988-1998, the average proportion of the 60+ group in the Podkarpackie voivodship increased from 14.5 to 15.8%, whilst the proportion of the 0-19 group dropped from 35.6 to 32.0%. In the whole of Poland, for comparison, the corresponding shifts were: 60+ from 14.5 to 16.4% and 0-19 from 32.7 to 29.0%. The age index increased from 40.7 to 49.2 (in Poland from 44.4 to 56.6). Thus, the population of the Podkarpackie voivodship had a younger age structure than that of the entire country.

In 1988, the youngest population was in found in towns. Out of 24 units with a young population profile (age index below 30) 19 were towns. They included large industrial towns, such as Stalowa Wola, Tarnobrzeg, Mielec and Sanok, where people migrated in search of a job, and towns with less than 10,000 inhabitants (Ustrzyki Dolne, Lesko, Ropczyce and Kańczuga). Rural areas in this category included mainly gminas located in the Bieszczady Mountains (Lutowiska, Cisna, Komańcza and Czarna), that could be attributed to their repopulating in 1950s and 60s. (In gmina Lutowiska there were only 10 of the 60+ group for each 100 persons of the 0-19 group.) Rural areas featured the most aged populations (Jawornik Polski 83.0, Kańczuga 80.0, Narol 77.4, Błażowa 75.3 and Krzeszów 75.1). Just in three towns the value of the age index exceeded 50 (Narol 62.8, Rymanów 60.9 and Baranów Sandomierski 58.1). Spatially, the most aged populations were located in the centre of the research area and along its northern borders (Fig. 1). Far away from major industrial centres, these areas exported population in 1980s.

In 1998, towns still had the lowest age indices, but their values had increased since 1988. Out of the 21 investigated units in the less than 40-range featured only two rural gminas: Lutowiska (28.6) and Gorzyce (33.3). The lowest indices among towns were recorded in Nowa Sarzyna (25.2), Kolbuszowa (29.3) and Lubaczów (29.8). The most aged populations were found in the towns of Narol (81.7) and Baranów Sandomierski (79.8), but rural population dominated the top two ranges of the index value (60+). Again the list was topped by the same rural gminas as before. Spatially, the demographically aged areas (index value above 60) had expanded while the young areas (index value below 40) had shrunk; Fig. 2).

The age index dropped (i.e. the age structure became younger) in 19 units including one town of Nisko. The drop was greatest (more than 5%) in gminas Jasienica Rosielna, Błażowa, Gawłuszowice and Kańczuga. On the other hand, the fastest ageing populations were found both in largest towns (Rzeszów, Krosno, Tarnobrzeg and Mielec) and smaller towns (Baranów Sandomierski, Nowa Dęba, Narol and Sędziszów Małopolski). In rural areas, the greatest increase in the age index was recorded in Besko (27.7 pts), Cisna (20.6) and Horyniec (19.2). Spatially, the largest

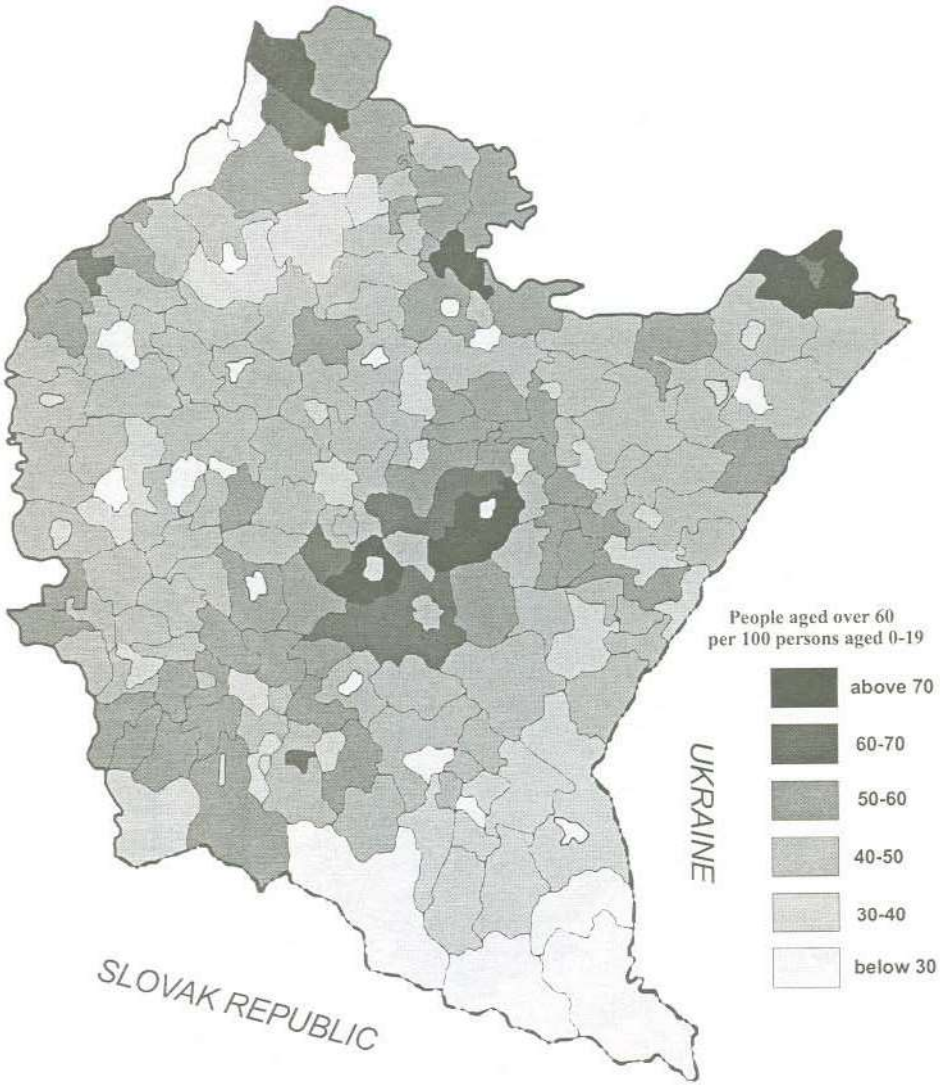

Fig. 1 Elderly-to-youth coefficient in 1988

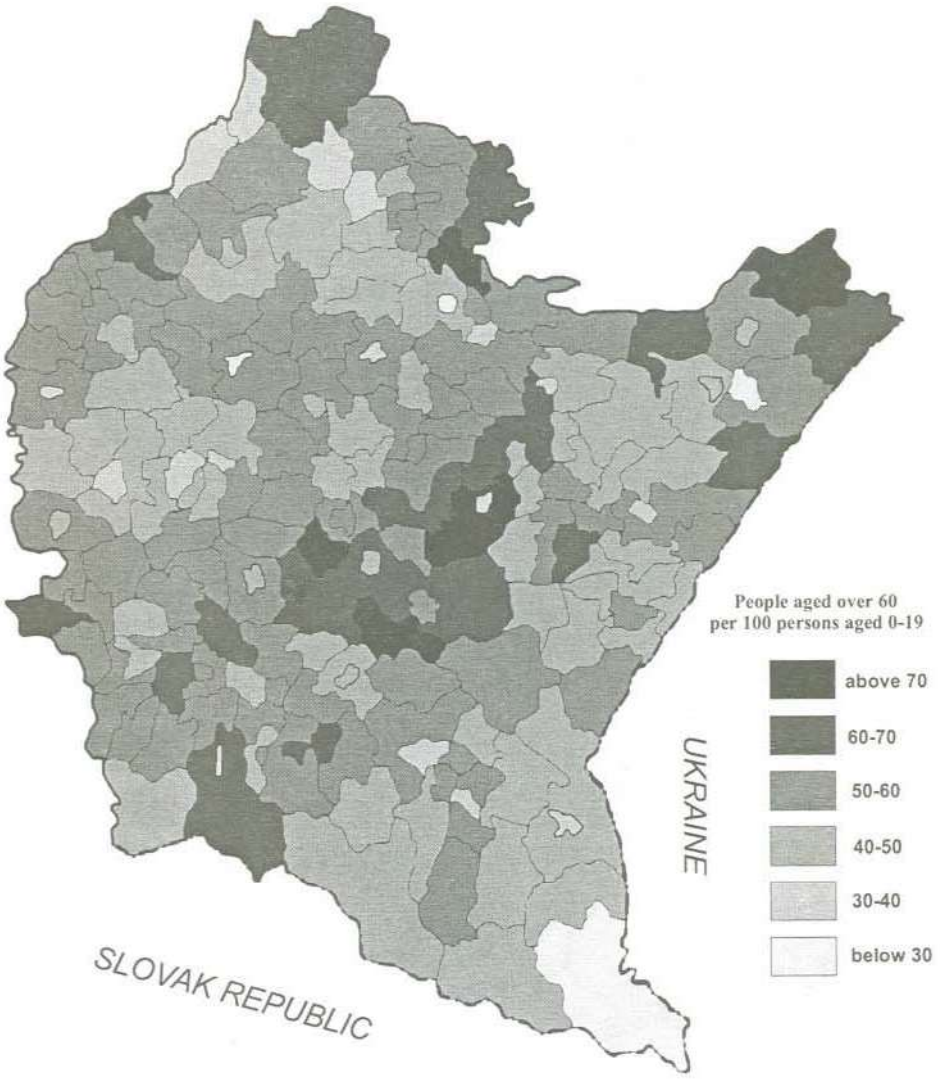

Fig. 2 Elderly-to-youth coefficient in 1998

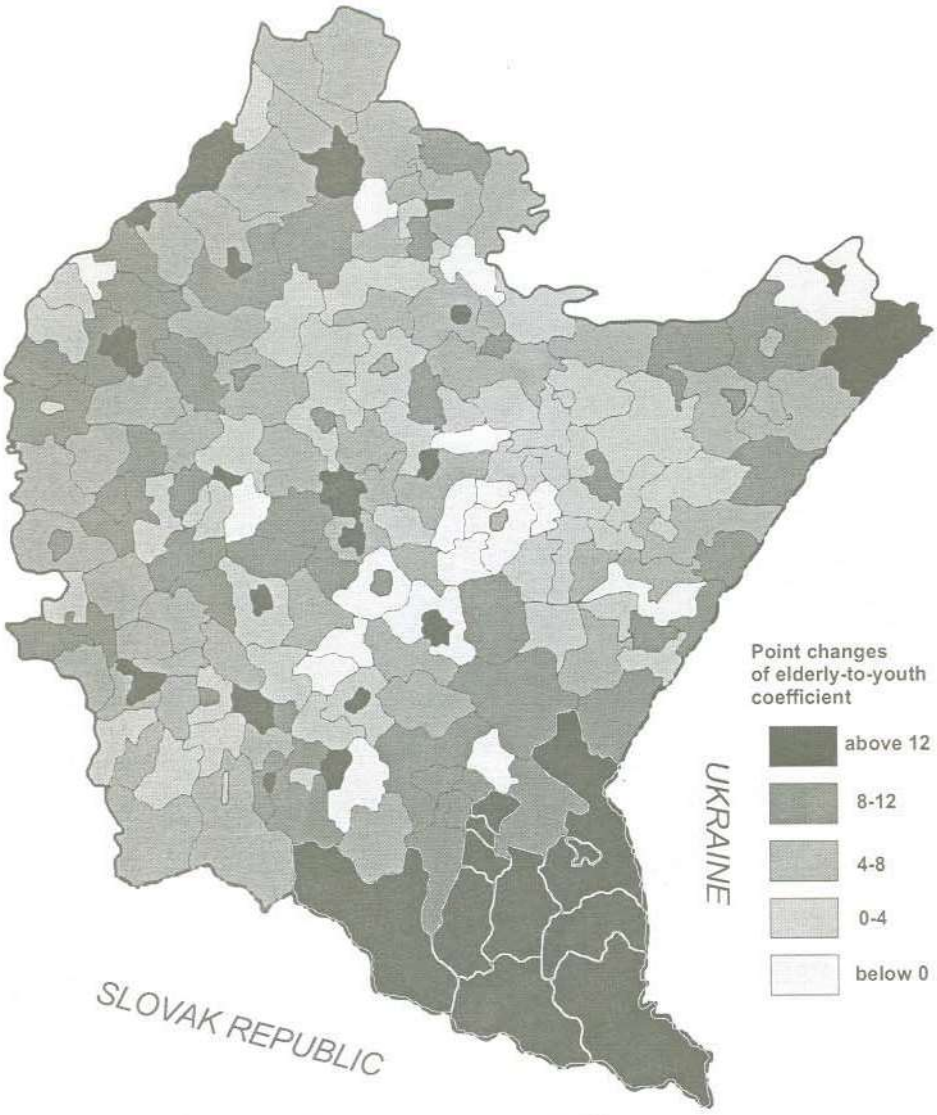

Fig. 3 Elderly-to-youth coefficient variability in 1988-1998

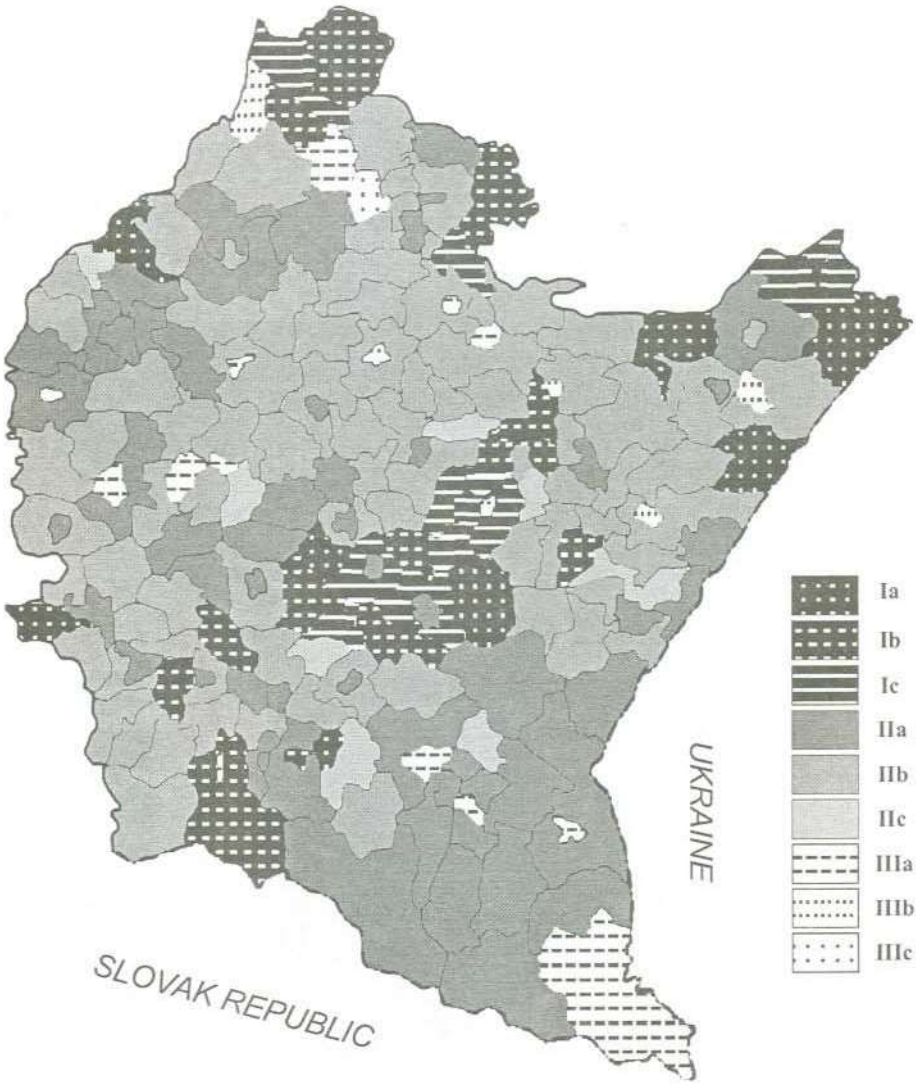

Fig. 4 Population ageing hazard areas. The level of hazard: I - high, II - middle, III - low

ageing population area was formed by the rural gminas in the Bieszczady Mts, while the towns constituted fast ageing islands surrounded by slower changing areas (Fig. 3). The rejuvenating populations concentrated in the middle of the region, exactly where the highest age indices prevailed in 1988.

Taking into account the trends in changes to the age structure combined with the current age of the researched population, an attempt was made to identify the areas exposed to demographic senility. Ten spatial units including two towns (Baranów Sandomierski and Narol) have been identified as the most exposed to demographic senility in featuring an already highly aged population, as well as a strong ageing trend. Generally speaking, the exposed areas were concentrated in the middle of the voivodship and in its northern parts (Fig. 4). The former represent virtually only farming areas with highly dispersed land ownership, the average farm holding up to three hectares of ground, and in some cases more than 40% of land held by farms up to two hectares. (see: Rolnictwo woj. podkarpackiego... 1999). The latter represent either rural areas far away from larger industrial centres (in the northeast) and characterised by high unemployment (see: Województwo Podkarpackie... 1999), or *gminas* located near industrial towns (i.e. Tarnobrzeg and Stalowa Wola) experiencing difficult transformation period.

The best age structure was recorded in the town of Nisko whose population had been growing younger and was below the voivodship average age. The third type of area, i.e. lowest exposed with ageing, was dominated by towns with just two rural gminas of Lutowiska and Gorzyce. Rzeszów, the largest town of the voivodship was classified as type 2, i.e. medium exposed.

In summary, at the time of political and economic transformation urban population has been ageing, while the traditionally demographically senile rural population experienced a slowdown and in some cases a halt to the ageing process. These trends in the changes to the age structure should be attributed to the difficulties on the job marked and the resulting drop to the migration flow from the rural areas, as well as a downturn to the natural growth rate in towns.

Bibliography

BETTS K. 1998, Fertility, migration, and the ageing of the population—an analysis of the official projections, People And Place, 6, 4, s. 33-37.

CHESNAIS J. C. 1990, Population ageing, retirement policy and living conditions of the elderly in China, Population - English selection, 2, s. 3-27.

DHARMALINGAM A. 1994, Old age support: expectations and experiences in a south Indian village, Population Studies, 48, 1, s. 5-19.

DŁUGOSZ Z., 1996, Zróżnicowanie struktury wieku na świecie a metody jej klasyfikacji, Przegl. Geogr., 68, z.1-2, ss. 151-165.

DŁUGOSZ Z. 1997, Stan i dynamika starzenia się ludności Polski, Czas. Geogr., 68, 2, s. 227-232.

DŁUGOSZ Z. 1998, Próba określenia zmian starości demograficznej Polski w ujęciu przestrzennym, Wiad. Stat., GUS-PTS, Warszawa, 3, s. 15-25.

DŁUGOSZ Z., Kurek S. 1997, Aging of the populations of large Polish cities versus age patterns in other settlement units (w:) Population changes in urban regions of the East-Central Europe in the conditions of their socio-economic transformations, Studia i Materiały, 4, Uniwersytet Łódzki, s. 28-36.

FRĄTCZAK E. 1992, Living arrangements of the elderly in Poland - evidence from survey life course (family, occupational and migratory biography), 1988, Polish Population Review, Polish Demographic Society, Central Statistical Office, Warsaw, 2, s. 106-126.

FRĄTCZAK E., Guraj-Kaczmarek K., Zarzycka Z., Bartczak S., Czajkowski A., Suchecka J. 1987, Wybrane uwarunkowania i konsekwencje procesu starzenia się ludności Polski, Monografie i Opracowania, 223, Instytut Statystyki i Demografii SGPiS, Warszawa, s. 232.

GOLINI A. 1997, Demographic trends and ageing in Europe. Prospects, problems and policies, Genus, 53, 3-4, s. 33-74.

GONNOT J. P., Keilman N., Prinz C. 1995, Social security, household, and family dynamics in ageing societies, European Studies of Population 1, Dordrecht, Netherlands, Kluwer Academic, s. 235.

HEIGL A., Mai R. 1998, Demographic aging within the regions of the European Union, Zeitschrift Fur Bevolkerungswissenschaft, 23, 3, s. 293-317.

HOLZER J. Z. 1994, Demografia, PWE, Warszawa, s. 363.
JELONEK A. 1986, Obszary zagrożeń demograficznych, Folia Geogr., ser. Oeconom., Kom. Nauk Geogr. PAN, Kraków, 19, s. 33-50.
JOHNSON N. E., Climo J. J. 2000, Aging and eldercare in more developed countries, Journal of Family Issues, 21, 5, s. 531-540.
KINSELLA K. 2000, Demographic dimensions of global aging, Journal of Family Issues, 21, 5, s. 541-558.
KEYFITZ N. 1968, Changing Vital Rates and Age Distributions, Population Studies, 22, 2, s. 235-251.
KUCIARSKA-CIESIELSKA M., MARCINIAK G. 1999, Seniorzy w polskim społeczeństwie, Dep. Bad. Dem. GUS, Warszawa, s. 243.
KUREK S. 1998, Zróżnicowanie przestrzenne procesu starzenia się ludności Europy w świetle wybranych mierników, Czas. Geogr., 49, 3-4, s. 261-274.
KUREK S. 2000, Tendencje zmian starości demograficznej w Polsce Południowo-Wschodniej (w:) Działalność człowieka i jego środowisko. Księga ku czci Profesor Marianny Kozaneckiej w 70. rocznicę urodzin, pod red. Zbigniewa Zioło. Wyd. Nauk. Akademii Pedagogicznej, Kraków, s. 297-308.
LEGARE J. 1993, Demographic aspects of the ageing process — past and future trends (in:) Synthesis of national monographs on population ageing,(edited by) Jacques Legare, George C. Myers and Leon Tabah, Valletta, Malta, International Institute on Aging, s. 15-28.
MALISIEWICZ E., 1999, Gospodarka województwa podkarpackiego w latach 1944-1999 (w:) Almanach podkarpacki 2000, Wyd. AKCES, ERWICO s. c. Regionalne Wydawnictwo Informacyjne, Rzeszów, s. 233-246.
NOWAKOWSKA B., Obraniak W., Nowak-Sapota K., Zarzycka Z. 1991, Terytorialne zróżnicowanie procesu starzenia się ludności Polski, Monografie i Opracowania 333, Instytut Statystyki i Demografii SGH, Warszawa, s. 182.
PINELLI A., Sabatello E. 1995, Determinants of the health and survival of the elderly: Suggestions from two different experiences - Italy and Israel, European Journal of Population, 11, 2, s. 143-167.
Rolnictwo województwa podkarpackiego. Powiaty. Urząd statystyczny w Rzeszowie, 1999.
ROSSET E. 1959, Proces starzenia się ludności. Studium Demograficzne, PWN, Warszawa, s. 763.
ROSSET E. 1967, Ludzie starzy. Studium demograficzne, PWE, Warszawa, s. 467.
STRZELECKI Z., WITKOWSKI J. 1991, Migration and population aging: A case of Poland, Polish Population Review, Polish Demographic Society, Central Statistical Office, Warsaw, 1, s. 59-72.
Województwo Podkarpackie w 1998 roku : ważniejsze dane o: województwie, powiatach, gminach, Urząd Statystyczny w Rzeszowie, 1999.

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