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## POPULATION CHANGES AND POPULATION AGEING IN POLAND BETWEEN 1960 AND 2011

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### Abstract

The paper presents a study of changes in the overall population of Poland and in the number and proportion of the 60+ age group. Popular census data spanning the period 1960-2011 was analysed at the level of commune-equivalent units (LAU 2). The study identified 9 types of communes based on two criteria: absolute population change and the proportion of the 60+ age group.

### Key words

population ageing • depopulation • concentration • demographic typology

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### Introduction

Fast-paced demographic change is going on around the globe, especially in developed countries, and this affects both the population structure and its numbers. Depopulation processes, particularly strong at the local and regional scales, combined with population ageing constitute a serious challenge to many economies. When compared to other European countries, Poland as a whole has been affected by only moderate rates of these

processes, but in many of the country's regions they have reached an advanced stage.

This study was intended to present fundamental trends in Poland's overall demographic evolution, analysed at the finest possible level of detail, in combination with population ageing. This latter factor was selected, as it was known to be the most characteristic process affecting the country's demographic structure and one that was followed by serious practical consequences, not least in the area of regional policy.

## Methods and data

The study period covered the years 1960-2011 and was selected to take advantage of the availability of comparable data. Indeed, public censuses were carried out in the first and last years of the study period, which was an advantage in the face of several changes in the territorial division of the country that happened in the meantime. A decision not to go back to the 1950 census was due to a demographically unstable environment in Poland after large-scale migrations that occurred between 1944 and 1946 (Kosiński 1963; Eberhardt 2000; Gawryszewski 2005). This movement affected the west and north of the country which was abandoned by the German population in the aftermath of the Second World War and repopulated mostly by Poles fleeing from territories that Poland had lost to the USSR. The 1960 census, therefore, was the first that was carried out after a relative stabilisation of the country's population and took account of these large-scale events of a political and administrative nature.

An effort was made to adopt a unified and comparable territorial breakdown, which was largely based on the situation in 1992. However, due to frequent changes in the boundaries of the lowest tier of administration – commune (*gmina*; LAU 2), certain measures had to be adopted either merging or splitting units, which finally produced 2454 commune-equivalent units.

## Concentration and depopulation processes

Between 1960 and 1990, i.e. until the end of communism, Poland's officially registered population rose rapidly (by nearly 28% compared to 1960). Birth rates that significantly exceeded mortality rates were the main contributor to this growth. According to Poland's Central Statistical Office (GUS), the country's population was increasing on average by 276 thousand people per annum, while

emigration rates were relatively low at close to 25 thousand of people per year. During the first two decades of the period, this growth rate remained stable (at 9.6% and 9.4%), but it then fell significantly in the third decade (to 6.5%).

From the early 1990s, this slowdown in the population growth was even sharper. While the official statistics reported stabilisation of the national population at 38.2-38.5 million, they did not account for large-scale emigration, as many of those leaving the country remained formally registered, even though they had indeed left for good (Korcelli 2002; Okólski 2012; Śleszyński 2013b). According to the latest census 1564.6 thousand people had remained abroad for more than 12 months (GUS 2013). As a side note, a situation where the 'actual' and 'official' data differ so much not only obscures the reality (Kupiszewski 2002), but also contributes to an undermining of trust in broadly understood public statistics (Eberhardt 2012; Gołata 2012; Śleszyński 2015).

Some areas of Poland have been affected by an unprecedented demographic decline. Depopulation particularly affected the east (except in the southern Podkarpackie Voivodeship), centre (Mazowieckie, Łódzkie and Świętokrzyskie Voivodeships, in the latter especially including the Nida River valley, an eastern part of the Kujawsko-Pomorskie Voivodeship and a northern part of the Warmińsko-Mazurskie Voivodeship) and the southwest of Poland (primarily the Sudety Mts and a southern part of the Śląsk Opolski region). The most acute cases of depopulation are recorded in the south and east of the Podlaskie Voivodeship where some communes have lost more than a half of their population during the study period (including Czyże 59.8%, Szudziałowo 57.7% and Dubicze Cerkiewne 56.9%). Detailed studies report the worst cases of depopulation in the smallest villages (Śleszyński 2006, 2013a; Jończy 2010, Latocha 2013; Szmytkie & Tomczak 2015). Also in some villages of the Mazowieckie Voivodeship, post-working population has reached or even

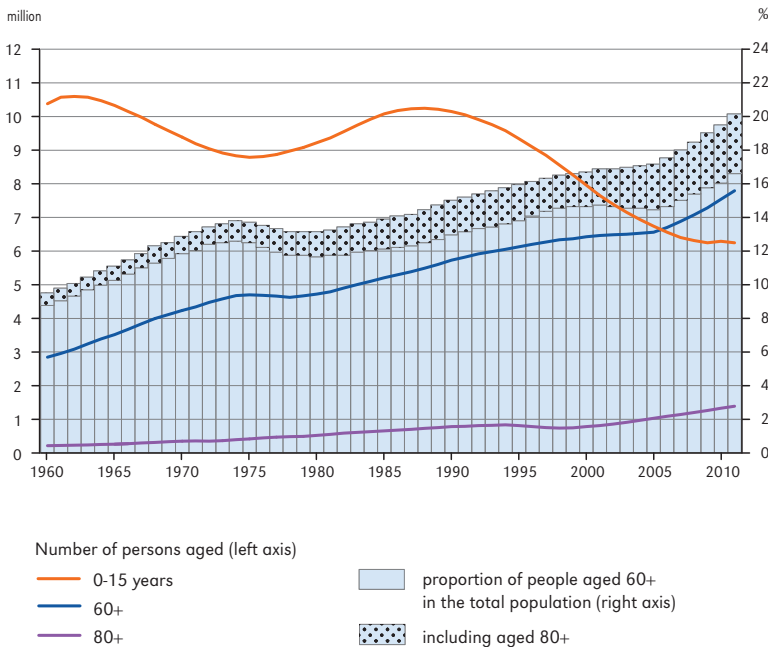
exceeded 50% of the total (Śleszyński 2014b).

Another characteristic process is a concentration of the population in urban agglomerations. Population was growing the fastest in the largest cities that gained inhabitants even in depopulating areas. Examples of the latter trend include the large cities of Lublin and Białystok, but also smaller towns, such as Suwałki, Augustów, Biała Podlaska, Chełm, and Sieradz, all of which suggest the main destination of migration streams. At the other end of the spectrum there are large and continuous areas of demographic growth, which encompass all of southern Poland, from Upper Silesia to the Bieszczady Mts; a broad coastal band of Pomerania from around Gdańsk to around Szczecin, including the particularly strong region of Kaszuby known for its traditional model of families with many children; and a western Polish area between the cities of Wrocław, Toruń, Bydgoszcz, Gorzów Wielkopolski and Zielona Góra.

The third characteristic demographic process involves the deconcentration of urban areas in the form of suburbanisation. In past decades, this process mainly affected the largest cities, but recent studies have found that it has now descended down the urban ladder (Śleszyński 2014a). One particularly adverse effect of this process is urban sprawl, which increases the cost of services in areas of dispersed development (Kowalewski 2015).

### Demographic ageing

The most significant of Poland’s demographic processes is the continual ageing of the country’s population structure. Polish society may already be regarded as aged. According to a classification system proposed by E. Rosset (1967), Poland had reached its demographic old age in the late 1960s, when its ageing index reached 12.3%, but in 2011 it had increased to 20.2% (Fig. 1). Additionally,



**Figure 1.** Changes of the population age structure, 1960-2011 (estimated data for years: 1969, 1978 – in case of 0-15 and 80+ age group and 1961-1964, 1967-1968, 1974 – in case of 80+ age group)

Source: based on CSO data.

in 2006 the old age group (60+) outnumbered the young group (0-15) for the first time.

At the onset of the study period, Poland was split into two distinct parts in terms of ageing index: (i) a northern and western part (excluding the Wielkopolska region) with a relatively young structure, as a result of a complete exchange of the population in these areas following the Second World War; and (ii) the rest of the country, i.e. central and southern parts (excluding the extreme south-west and the southern part of the Małopolska region) whose society had already entered a stage leading up to demographic old age (see: map Population change in the 60+ age group, 1960-2011).

A half of a century later, the picture is far more depressing: there is not a single commune in Poland that would be considered to have a demographically young population. What is more, about 60% of them are in a stage of advanced aging (with more than 18% of the population in the 60+ age group). This effect is strongest in areas affected

by acute depopulation, i.e. in the southern and eastern part of the Podlaskie Voivodeship where some communes have more than 40% of the inhabitants in the 60+ age group (Dubicze Cerkiewne, Orla and Czyże). The demographically youngest population is found in the Gdańsk Pomerania region, but even it has entered into an intermediate stage leading from young to old age.

## Demographic typology of Poland

A demographic typology has been developed for Poland based on the two main components of population change mentioned above: overall population change during the study period and the structure, i.e. the percentage of people of an age of 60 years or more in the overall number (Tab. 1).

This typology eschews an element of dynamic approach to the change in the population age structure (Długosz & Kurek 2006; Kurek 2008). At the onset of the study period, the age structure varied widely from

**Table 1.** Demographic types of communes

Type	Characteristics	No.	Population		Population at 60+	
			2011 [thous.]	change 1960-2011 [%]	2011 [% of total]	share difference [p.p.]
A1	Progressive at an early stage of demographic ageing	155	1,869	78.8	13.5	4.9
A2	Progressive at a middle stage of demographic ageing	429	6,206	57.1	16.6	7.3
A3	Progressive at a highly advanced stage of demographic ageing	435	19,041	59.4	21.1	12.0
B1	Stagnant at an early stage of demographic ageing	50	317	4.7	14.4	7.2
B2	Stagnant at a middle stage of demographic ageing	328	2,190	1.8	16.8	7.9
B3	Stagnant at a highly advanced stage of demographic ageing	494	5,991	-1.2	21.2	11.0
C1	Regressive at an early stage of demographic ageing	1	4	-21.7	14.5	9.0
C2	Regressive at a middle stage of demographic ageing	45	225	-20.6	16.9	9.4
C3	Regressive at a highly advanced stage of demographic ageing	517	2,669	-27.1	22.4	10.9
Poland overall	Progressive at a highly advanced stage of demographic ageing (A3)	2,454	38,512	31.0	19.8	10.2

region to region. The demographically young western and northern territories stood in contrast to the central, eastern and, to a lesser extent, southern regions where ageing had already made its mark. It was obvious that during the study period the most dynamic change in the age structure occurred in western and northern Poland. Therefore, adopting this variable as the main criterion in the proposed typology would have caused a certain distortion in the actual status of the demographic ageing process. Indeed, the deepest structural change, regardless of the period when it took place, occurred in eastern and central Poland despite the fact that its rates during the study period were lower.

The table lists all the types identified in terms of the intensity of demographic processes and its potential impact on the demographic future. The types can be characterised as follows:

A1 type: this type offers the best prospects for demographic development. It covers areas typified by deeply rooted family traditions (Kaszuby, central Małopolska) and the suburban areas of some regional and sub-regional centres (e.g. Poznań, Radom, Kielce, Ostrołęka, Olsztyn), which attract young migrants;

A3 type: this type reflects overall national demographic transformation patterns during the period 1960-2011, i.e. growth in both the overall population and in the senior group. The demographic development in these areas (mainly urban agglomerations and smaller urban areas) is largely a result of migrations and suburbanisation. The type covers more than a half of the country's population (is continuous in areas including greater Warsaw, virtually all the Silesian Voivodeship and a boundary area between the Małopolska and Podkarpackie Voivodeships);

C1 type: areas with this type are in a relatively sound demographic situation, but face adverse prospects for demographic development, which remains under pressure from, among other factors, a potential acceleration of the ageing process (emigration, mainly of young people). There is only one com-

mune of this type in Poland (Markusy in the Warmińsko-Mazurskie Voivodeship);

C3 type: this type covers communes where the rates and stage of adverse demographic processes are equivalent to a state of a 'demographic desert'. These communes are prone to economic stagnation or even decline. A relatively continuous area with this type covers eastern Poland (except Podkarpackie), central Poland (except towns and urban peripheries), a strip of the Warmińsko-Mazurskie Voivodeship along the national border and the Sudety Foothills and the southern Opolskie Voivodeship.

## Conclusions

During the 50 years of the study period, Poland has gone from a dynamically growing population to a phase of sudden deceleration at the onset of its political and economic transformation in the early 1990s and finally to a decline in recent years. From a demographic standpoint, these changes came from shifts in birth rates, the rate of natural increase and considerable migration flows. During the last decade, these factors were compounded by emigration at a scale unprecedented in post-Second World War Poland and partly unaccounted for by the official statistics. Combined with growing life expectancy, these processes have produced significant changes in the age structure, most prominently including the ageing of the population. These effects are best seen at regional and local levels.

As an analogy to classical depopulation areas identified by Eberhardt (1989), Poland has its own problem areas. The one most affected is the Podlaskie Voivodeship, especially its southern and eastern parts, that features an enormous scale of depopulation and a very high degree of ageing. Other areas where the processes in question are very strong include the southern and north-eastern parts of Lubelskie Voivodeship, a southern part of the Świętokrzyskie Voivodeship (the Nida river valley), central Poland (Łódzkie Voivodeship excluding its central part and

the north-western part of the Świętokrzyskie Voivodeship) and peripheral communes of the Mazowieckie Voivodeship, chiefly its eastern and northeastern parts (Kurpie region).

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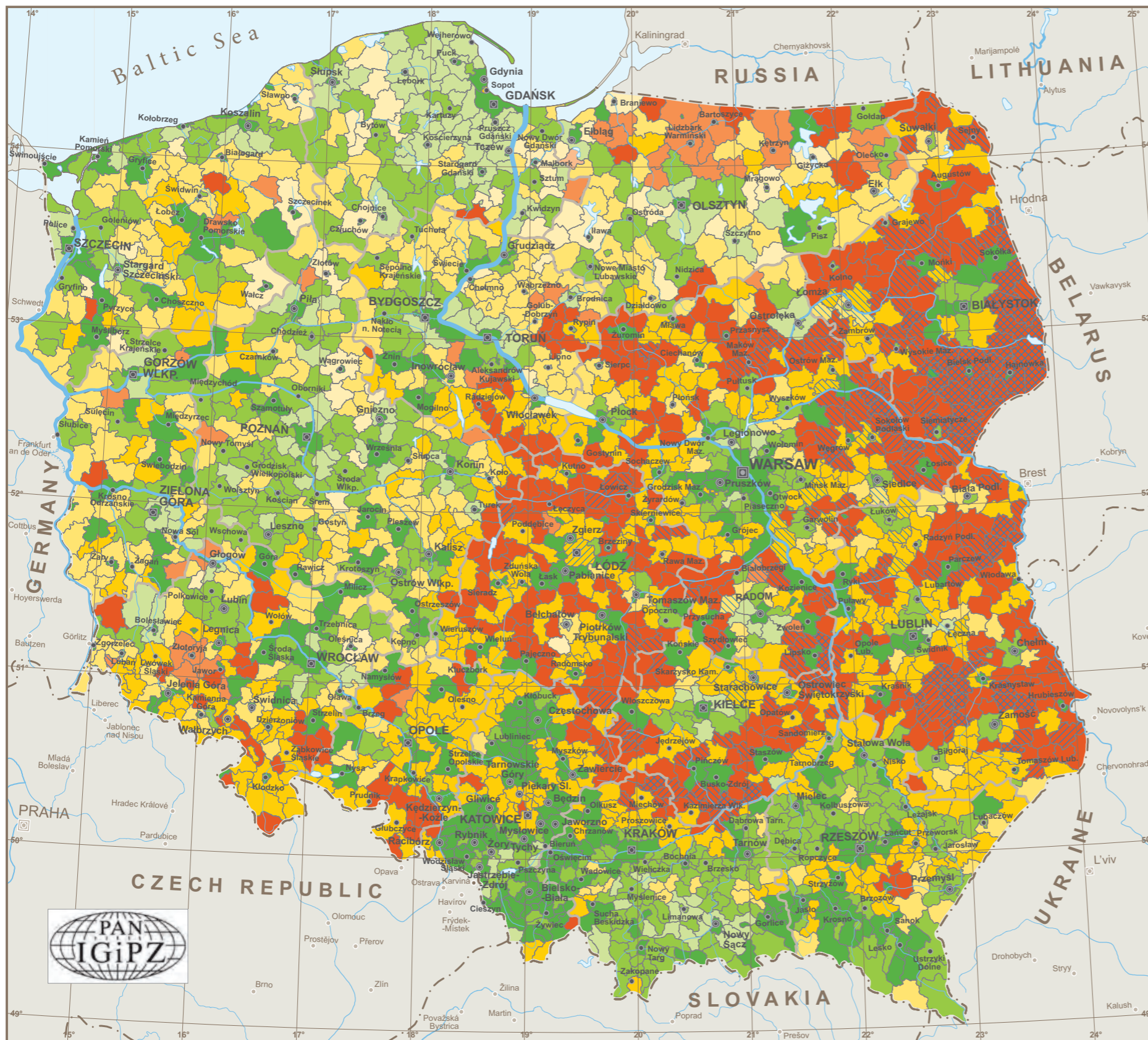
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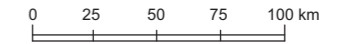




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## Demographic typology

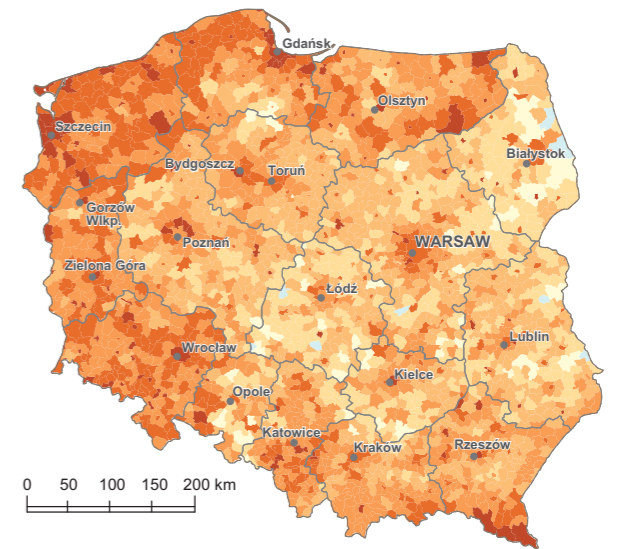
Proportion of people aged 60+ in the total population, 2011 (%)

Population changes, 1960-2011, 1960=100 (p.p.)

	< 15	15-18	> 18
> 15	A1	A2	A3
-15-15	B1	B2	B3
< -15	C1	C2	C3

- proportion of people aged 60+ in the total population, 2011 – more than 25%
- proportion of people aged 80+ in the 60+ age group, 2011 – more than 25%

## Population changes in the 60+ age group, 1960-2011



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