

JADWIGA MAŚLANKA

NICOLAUS COPERNICUS UNIVERSITY, TORUŃ

DEMOGRAPHIC CHANGES IN PORTUGAL AT THE TURN OF THE 21ST CENTURY

ABSTRACT. The article discusses demographic changes taking place in Portugal at the turn of the 21st century. Based on statistical data derived from the most recent national censuses of population conducted in years 1991 and 2001, variations in the situation and structure of population were analysed, also by gender and age, while taking into account processes such as feminization or ageing of the society. Portugal is a small country in area terms, but its demographic structure is rather diverse. This diversity stems from different geographical and natural determinants, as well as socio-economic and historio-political factors that operated and are still active in the country.

KEY WORDS: Portugal, demographic structure, ageing and feminization process.

INTRODUCTION

The issue of population structures is one of the most important subjects examined by social sciences. Its meaning and extraordinary importance are mainly associated with the fact that it attempts to present and explain mechanisms responsible for processes such as the ageing of societies or excessive feminization in developed societies that many countries try to counteract today. The latter have drawn a lot of attention in many studies, for instance those authored by Booth, 2006; Długosz, 2002, 2003, 2004; Faus-Pujol, Higuera-Arnal, 2000; Grzelak-Kostulska, 2001; Holzer, 2003; Golini, 2001; Kurek, 2002; Lloyd-Sherlock, 2000a, 2000b; Mitrega, 1997; Nazareth, 2000; Rostow, 2001; Santana, 2000; Tinker, 2002. Of particular importance is the problem of accelerated ageing, whose considerable dynamics can

be observed in the European countries. The process consequences are addressed not only during the preparation of socio-economic strategies for individual regions, but also in the drafting of national budgets, establishing directions for manufacturing and services, and assessing the labour force. In addition to ageing, the excessive feminization of societies also produces negative impacts and as time goes by it distorts the gender structure more and more strongly, ultimately contributing to serious problems in the matrimonial market, increased number of single women, lower marriage rates, and a falling number of births.

This article presents the situation and the demographic structure of Portuguese population at the turn of the 21st century.

Statistical data used in the study were derived from the National Censuses of Portugal's population (run by the National Statistical Office in Lisbon) that had been published as books titled '*Resultados Definitivos de Censos de 1991*' and '*Resultados Definitivos de Censos de 2001*'. The data were completed with materials available on the web site www.ine.pt.

The study discusses a period covering the last decade of the 20th century and the beginning of the 21st century, i.e. years 1991 and 2001, when Portugal conducted its most complete National Censuses.

The analysis is based on NUTS (Nomenclature of Units for Territorial Statistics), which are EU territorial units designated for statistical purposes. In Portugal, a NUTS of the first order (NUTS 1) is the continental part of the country and separately two Portuguese archipelagos that belong to it – Madera and the Azores Islands. In this article, the spatial analysis is limited to the continental part of Portugal. This is by no means an arbitrary choice, but one dictated by practical reasons, because the Central Statistical Office is located on the continent and two additional Offices operating in Portugal's autonomous archipelagos of Madera and the Azores gather data on their respective territories (Nazareth, 2000; <http://www.asturocio.com>). This structure causes that even the collective studies following from National Censuses and applying to continental Portugal omit statistics for the archipelagos. Therefore, statistical data collected for the study will concentrate exclusively on the continental part of the country, divided into 28 units (NUTS 3). The decision to base the analysis on the breakdown into the NUTS was largely determined by the fact that at the very start of gathering the research materials data presented according to the EU territorial division were assumed more reliable and more complete than those available for the existing administrative division of the country.

Demographic issues are very popular among geographers who are very willing to deal with such subjects (Długosz, 2002, 2003, 2004; Grzelak-Kostulska, 2001; Holzer, 2003; Jagielski, 1974; Kurek, 2002; Mitreęa, 1997; Okólski, 2004 at al.). Therefore, this study's novelty does not arise from the introduction of new ways

of presenting the demographic data, but from the fact that an average Pole knows relatively little about Portugal. Besides, the structures and processes taking place in Portugal are not a frequent subject of demographic research. Among the few relevant publications, we can mention studies by Fernandes (2007), Nazareth (2000) and Santana (2000). Given the situation, the paper aims to present contemporary structures and demographic processes in Portugal in the context of similar processes running in other European countries.

Portugal that has an area of around 90,000 sq. km is populated by approximately 10 million people (2001) who are almost homogenous in ethnic terms (www.ine.pt; Portugalia..., 2003). Nonetheless, demographic changes occurring on its territory show various pace and dynamics. According to researchers specialising in that part of Europe (Dobrzyński, 1985; Saraiva, 2000), the causes of the situation should be mainly sought in the diversity of natural environment. The best endowed in that respect is the western part of the country on the Atlantic coast, where the climate is mild and warm, rainfall high, and the terrain slightly delevelling; intensive settlement processes started there the earliest. In the eastern part, the natural environment has not been conducive to human settlements; such processes have been discouraged by either upland-mountainous features of the north-eastern part of the country or the dry, Mediterranean-like climate prevailing in its southern part (Brown at al., 2005; Saraiva, 2000). In time, larger towns and urban agglomerations started to appear on the western coast, which ensured better jobs and higher standard of living, and attracted people to settle or to migrate there. Consequently, demographic developments and phenomena started to be affected by the socio-economic factors. Until early 19th century, historical past and political security were equally important and meaningful for the presented socio-demographic phenomena. Portugal has always had only one neighbour – Spain, a country that is 350 years younger than Portugal, but five times as big (Dobrzyński, 1985). For long centuries, this disproportion made the Portuguese deeply distrustful in their neighbour that surrounds them in the north and in the east, and whom they perceived, not without reason, as the main source of threat, territorial rather than economic. The factors made the population choose their new settlements in areas possibly remote from the Spanish borders and prefer safe west to risky, as they believed, east.

The western part of the country has been more densely populated until today and the demographic structures there (the gender and age structure) are also more favourable. The situation is believed to be the outcome of the combined influence of all the presented factors that operate with different intensity in individual parts of Portugal.

Assumptions underlying the research were formulated in line with the above determinants of demographic processes. Among other things, it was assumed

that Portugal belongs to a group of countries that have experienced so-called demographic transformation, which manifests itself in gradually falling mortality and increasingly dramatic decline in the birth rate. The expected consequence of the two phenomena is first stabilizing number of population, and then, in time, its steady drop. However, Portugal with its rich colonial past is an attractive destination for emigrants, especially residents of its former colonies, and to a lower degree to population living in countries at a lower level of socio-economic development. In either case, the emigrants are young people that increase the number of population and improve its age structure.

Portugal is not uniformly populated, because of a range of natural, economic, demographic, social, and political factors. Variations in the spatial distribution of population are directly determined by the climate, mainly the temperatures and rainfall, and topography. Mountainous areas in the north and northeast, and dry and hot areas in the south have been traditionally inhabited by a lower number of population than the flat and humid areas along the coast. Settlers' preferences are also guided by the distance from the sea (marinization rate), according to a rule saying that the closer to the sea the more people live on 1 sq km of land, which actually holds true for all continents on earth excluding Africa (where slaves were captured and traded). However, some variations in the distribution of Portuguese population result from migration between areas inside the country or from international migration. In addition, the main areas with concentrated population are urban centres and capitals of larger administrative units that offer the best infrastructure and many institutions providing higher-order services that are not available in provincial towns and villages. Urban and industrial centres along the coastline – Lisbon, Porto, Setúbal – have also become the destinations for the largest numbers of new migrants whose preferences are guided primarily by employment opportunities. Consequently, the most densely populated are districts on the western coast that have the largest urban agglomerations in the country. In contrast, the smallest numbers of population live in districts in the eastern part of the country, where small towns and villages prevail.

Changes in population's age structure are determined by the levels of births and deaths, and migration. As it has already been mentioned, the birth and death rates have been dropping in Portugal, while life expectancy has been extending, and this combination makes her society age. Unfortunately, the inflow of young and mobile population cannot prevent the course of events; it can only slightly cushion its negative impacts. Therefore, the number of the working age population can be currently expected to grow moderately, while the number of population at retirement age will keep expanding faster and faster, as fast as the group of the pre-working age population will be shrinking. In spatial terms, the

deteriorating age structure will mainly affect rural areas and areas at a lower level of socio-economic development in the east of the country. Ageing will be less intense in areas in western Portugal and in the Algarve region that are better developed, and whose urban character is more distinct.

Factors affecting population's gender structure are mostly the age structure, variations between male and female mortality rates and the correlation between gender and international migration. Portugal is a developed country and so it is natural to expect that one of her traits will be progressing feminisation of the society. In general, the phenomenon stems from stronger socio-spatial mobility of women; in case of Portugal an additional determinant is after-effects of extensive economic emigration among men in times when Portugal was still a relatively poor country and of their political emigration in the colonial war period. Results provided by the National Census of Population in 1864 and by every next census indicate that women outnumbered men. This was almost a standard situation in 1988, with the exception of two spatial units in continental Portugal, i.e. Beja and Bragança. The largest disproportion was recorded then in the northern and central parts of the country, where men emigrated more often. However, in the 1980s of the 20th century men prevailed in 22 out of 305 communes in the country, but as many as 18 of the communes were in the south (<http://countrystudies.us>).

THE NUMBER AND DENSITY OF POPULATION

In 1991 Portugal's population amounted to almost 9.4 million people and in the next decade it grew by around 0.5 million (Table 1). The moderate 5% growth was owned primarily to the fast-decelerating natural increase and to inflows of migrants compensating for the losses. Examined with respect to the system of districts NUTS 3, the pace of changes in the number of population varies depending on the region. Besides, Portuguese territory can be easily divided into several distinct regions showing similar trends. The largest number of population, and additionally its steady and strong growth, was identified in districts that have within their territorial extension two main agglomerations in the country, i.e. Porto and Lisbon, with their surrounding areas. Next ones are districts directly bordering with the agglomerations and districts on the western coast along a straight line between Porto and Lisbon. Other districts, regardless of their size, have much smaller numbers of populations. Population sizes practically did not change in the northern districts and those in the mid-western part of the country. The least densely populated districts in the interior were characterized by downward trends of various dynamics.

Table 1. Number of Portugal's population by NUTS 3 in 1991 and 2001

No.	NUTS 3	1991	2001
1	Alto Trás-os-Montes	235,241	223,333
2	Ave	466,074	509,968
3	Cávado	353,267	393,063
4	Douro	238,695	221,853
5	Entre Douro e Vouga	252,370	276,812
6	Grande Porto	1,167,800	1,260,680
7	Mínho-Lima	250,059	250,275
8	Tâmega	509,209	551,309
9	Baixo Mondego	328,858	340,309
10	Baixo Vouga	350,424	385,724
11	Beira Interior Norte	118,513	115,325
12	Beira Interior Sul	81,015	78,123
13	Cova da Beira	93,097	93,579
14	Dão-Lafões	282,462	286,313
15	Pinhal Interior Norte	139,413	138,535
16	Pinhal Interior Sul	50,801	44,803
17	Pinhal Litoral	224,334	250,990
18	Serra da Estrela	54,042	49,895
19	Grande Lisboa	1,880,215	1,947,261
20	Lezíria do Tejo	232,969	240,832
21	Médio Tejo	221,419	226,090
22	Oeste	314,390	338,711
23	Península de Setúbal	640,493	714,589
24	Alentejo Central	173,216	173,646
25	Alentejo Litoral	98,519	99,976
26	Alto Alentejo	134,607	127,026
27	Baixo Alentejo	143,020	135,105
28	Algarve	341,404	395,218
	Portugal	9,375,926	9,869,343

Source: Developed by the author based on data available at *Instituto Nacional de Estatística, Resultados Definitivos de Censos XIII* and www.ine.pt.

Average density of population in Portugal in 1991 was over 105 persons per sq km, but 10 years later, it increased to almost 111 persons per sq. km, which approximately corresponded to the average value recorded for the EU countries (115 persons per sq. km in 2002; *Eurostat*). Two attached maps (Fig. 1) presenting years selected for the analysis show almost an identical situation, which allows to

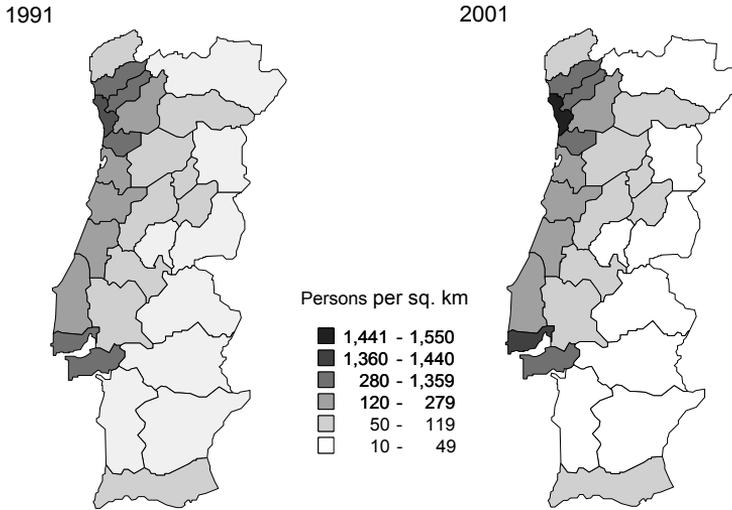


Fig. 1. Density of Portugal's population in 1991 and 2001 by NUTS 3 districts

Source: Developed by the author based on data available at *Instituto Nacional de Estatística, Resultados Definitivos de Censos XIII* and www.ine.pt.

conclude that changes taking place within all districts point in a similar direction (and are limited), and additionally that the population's preferences as to the place of residence are stable. The only district where the increase in the density of population was worth marking on the 2001 map is Grande Porto, i.e. the Porto area, which for many years has been successfully competing against the area of the capital city of Lisbon (<http://countrystudies.us/portugal>). In 2001, the average density of population for the Lisbon area exceeded 1,415 persons, while the same rate for Porto was almost 1,550 persons. This means that the two areas differed by nearly 135, whereas 10 years earlier the difference was twice smaller (67 persons). An increase in the number of population in the Lisbon district and the Porto district, followed by a higher density of population, does not take place within the administrative borders of the cities themselves, but in their suburban areas; the phenomenon is confirmed by the numbers of populations in both the cities that have been dropping for at least a dozen years (*Eurostat*). Interestingly, a similar decline in population density could be observed only in two other capitals of former EU-15; i.e. Madrid and Brussels. Notwithstanding the drop recorded within the administrative borders of the two main Portuguese cities, Lisbon and Porto, their density of population continued to be very high (7,912 persons per sq km in Lisbon and 7,261 in Porto) compared with other European capitals. The rates were higher only in Paris and Athens (among former EU-15). High

density of population was also characteristic of the agglomerations of Lisbon and Porto, where it amounted to 4,000 persons per sq km and almost 6,000 persons, respectively, while the rate for Athens and Madrid exceeded 3,000 persons per sq km and merely 1,000 persons in Stockholm, Copenhagen, and Helsinki (*Eurostat*).

Generally, population density in Portugal is arranged in zones, within compact and homogenous areas. Unquestionably, Zone 1 is coastal lowlands stretching from the Porto area along a straight line as far as the Lisbon area, where the average density of population is 424 persons per sq km. Zone 2, with population density equalling 67 persons per sq km, incorporates areas adjoining Zone 1 and the southern edge of Portugal, and more precisely the Algarve district, whose strong economic growth results from improved tourism turnover that has been growing especially dynamically over the last dozen years. The economic and demographic growth in the districts creating many jobs has attracted population living in other, poorer areas of Portugal and has encouraged the settlement of foreigners appreciating unique natural values of the southern coast. The most thinly populated and additionally the driest parts of the country in the south and south-east together with mountains in its north and the north-eastern part represent Zone 3, where the density of population is within 30 persons per sq km and the average value of the rate for the area is 23 persons per sq km.

AGE AND GENDER STRUCTURE OF POPULATION

Population's structure by gender and age provides a basis for all demographic analyses and forecasts, because the factor exerts the decisive influence on the evolution of elements within the natural development of population. The latter is a key issue when it comes to socio-economic planning, identifying the size of the labour force, the level of consumption, the extent of the school system, education and the scale of population's needs.

Using terminology introduced by Sundbärg (1894, 1900), an age-gender pyramid constructed for the Portuguese population in 1991 can be described as a stationary or stagnant form. This means that the analysed population had comparable numbers of births and deaths and so its number of population was relatively stable. Within the next 10 years, the pyramid definitely changed its bell-like shape into one resembling an urn, thus moving very clearly toward the regressive type characterised by births falling year by year and ageing society. Consequently, its shape started to resemble age-gender pyramids characteristics of most European countries.

Having analysed both the pyramids (Fig. 2) we can generally conclude that the number of the pre-working age population decreased in Portugal in the years 1991–2001 by 6%, dropping from 28 to 22%, while the number of population at retirement age grew by 3%, from 14 to 17%, which is quite an alarming

phenomenon because of the relatively heavy burden of social allocations to pensions and healthcare. The situation is caused by a trend typical of the highly developed countries, which reduces the number of births, on one hand, but extends life expectancy, on the other. Direct outcomes of the course of events are dropping natural increase, smaller share of population aged 0–19 years and a growing number of population aged 65 years and over (Długosz, 2003).

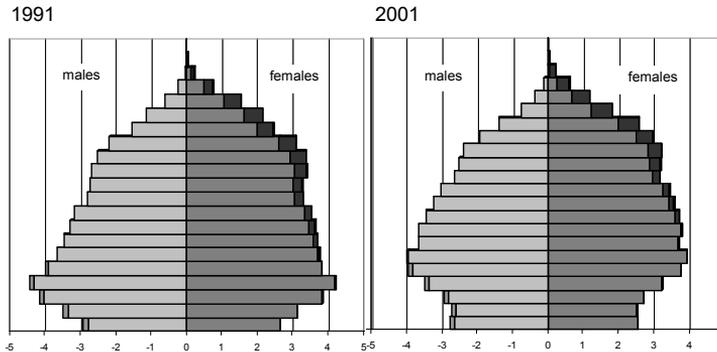


Fig. 2. Age-gender pyramid of Portugal's population in 1991 and 2001

Source: Developed by the author based on data available at *Instituto Nacional de Estatística, Resultados Definitivos de Censos XIII* and www.ine.pt.

A very favourable trend was the growing number of population aged 20–64 years, being the years of economic activity. In the analysed years, the population increased by 3% (from 58 do 61%), owing to relatively large groups of young people reaching the production age that were recorded in 1991. Another important agent behind the expansion of the age group was the inflow of people from countries at a lower level of socio-economic development that view Portugal as a chance to improve their living conditions. This group especially includes migrants from the former Portuguese colonies, such as Angola, Cape Verde or Brazil, but not only, as evidenced by the case of the Ukraine, whose residents are more and more eager to move to Portugal (<http://countrystudies.us>).

Regarding the demographic profile of individual districts, the largest number of the working-age population, i.e. aged 20–64 years that are very important in both demographic and economic terms, lives primarily in areas surrounding the largest urban agglomerations, i.e. Lisbon (Grande Lisboa, Península de Setúbal) and Porto (Grande Porto, Ave, Cávado, Entre Douro e Vouga). Moreover, the percentage of the working age population declines from west to east.

As expected, districts around Porto and Lisbon and the coastal districts generally had a young demographic structure, which means that a considerable

percentage of their population was under 19 years of age, and a relatively small portion was older than 64 years. The situation of the economically underdeveloped regions, i.e. the southern region of Alentejo and the eastern part of the Central region, excluding districts on the coast, was much worse. A large percentage of their population is old in demographic terms and the demographically young people able to improve the present state of affairs make up a relatively small percentage (Fig. 3). The relation between the demographically youngest and oldest populations is illustrated by the ageing index that indicates the degree to which population aged 65 and over burdens population aged 0–14 years (Długosz, 2002, 2003). A graphic representation of the index (Fig. 4) calculated for Portuguese NUTS 3 revealed that in all spatial units the burden of the oldest population was growing, particularly strongly in the eastern part of the country.

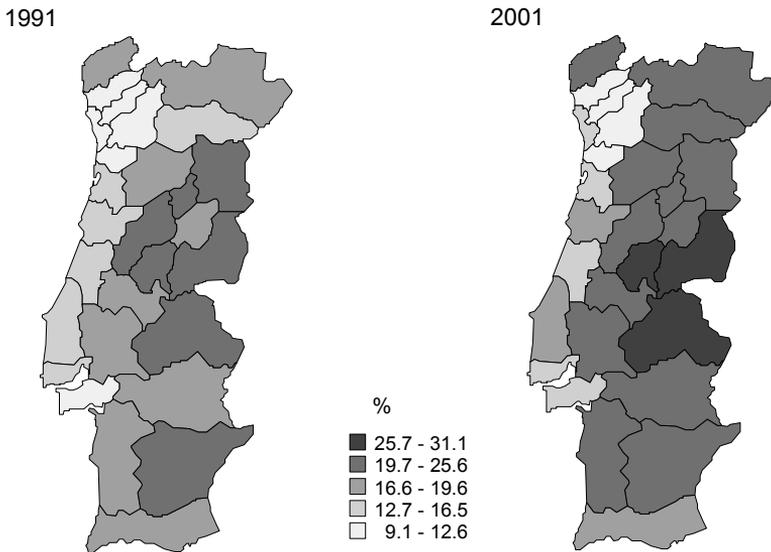


Fig. 3. Percentage of population aged 65 and over in the total number of Portugal's population by NUTS 3 in 1991 and 2001

Source: Developed by the author based on data available at *Instituto Nacional de Estatística, Resultados Definitivos de Censos XIII* and www.ine.pt.

The rate at which the Portuguese population has been ageing is also astonishing; still in 1991 the district where the demographic burden was the heaviest had 165 persons aged 65 years and over per 100 persons aged 0–14 years, but in 2001 the value went up to as many as 257 persons and was the highest again. For all Portugal, the 1991 ageing index was almost 70, but 10 years later it exceeded

was observed then in Bosnia and Herzegovina and the weakest in Denmark, Monaco, Switzerland and Sweden, etc.; in the same period no changes were recorded in Croatia, the Netherlands, Lichtenstein, Luxemburg, Germany and the UK (Długosz, 2003).

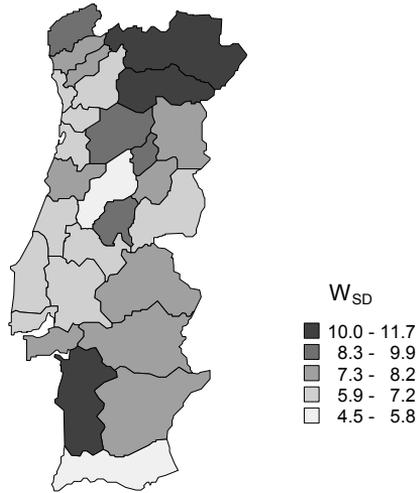


Fig. 5. Old-age rate in Portugal by NUTS 3

Explanation:

$$W_{SD} = [U(0-14)_t - U(0-14)_{t+n}] + [U(>64)_{t+n} - U(>64)_t]$$

$U(0-14)_t$ – share of population aged 0–14 years at the beginning of the analysed period

$U(0-14)_{t+n}$ – share of population aged 0–14 years at the end of the analysed period

$U(>65)_t$ – share of population aged 65 years and over at the beginning of the analysed period

$U(>65)_{t+n}$ – share of population aged 65 years and over at the end of the analysed period

Source: Developed by the author based on data available at *Instituto Nacional de Estatística, Resultados Definitivos de Censos XIII* and www.ine.pt.

Owing to the availability of various indicators of society’s ageing and comparisons made in that field for in Portugal in the period 1991–2001, one cannot avoid the feeling that the gap between the coast and the interior keeps growing.

In Portugal, the age structure exhibits considerable variations. Among the pre-working age population males prevail in a definite majority of districts, in the working-age category numbers of males and females are comparable, but in the third category, i.e. in the retirement age population, females outnumber males.

This situation is mainly explained through the operation of biological factors, because notwithstanding the fact that male births generally exceed female births, males die more frequently and live shorter. The causes are their weaker biological immunity and much more frequent cases of employment in jobs involving heavy physical strain. Strangely, however, in Portugal the moment when the numbers of males and females become equal comes very quickly, already around 25 years of age; this permanent trend was visible in both 1991 and 2001.

A phenomenon that we can observe in Portugal's demographic structure is rather considerable surplus of females over males amounting to as much as 4%. The situation is caused primarily by selective economic out-migrations, where the emigrants were mainly job-seeking males. It is also worth remembering that at the beginning of the second half of the 20th century. Portugal was a poor country entangled in the solving of colonial conflicts and governed by dictatorial authorities. The factors triggered emigration from Portugal already in the '50s of the 20th century, first to Brazil and Venezuela, and then to France, Germany and the USA (Dobrzyński, 1985; *Portugalia...*, 2003; Saraiva, 2000). Starting from the 1980s, emigration was usually a temporary phenomenon and its destination was the EEC countries. Emigration in the 1970s had other causes as well, mainly

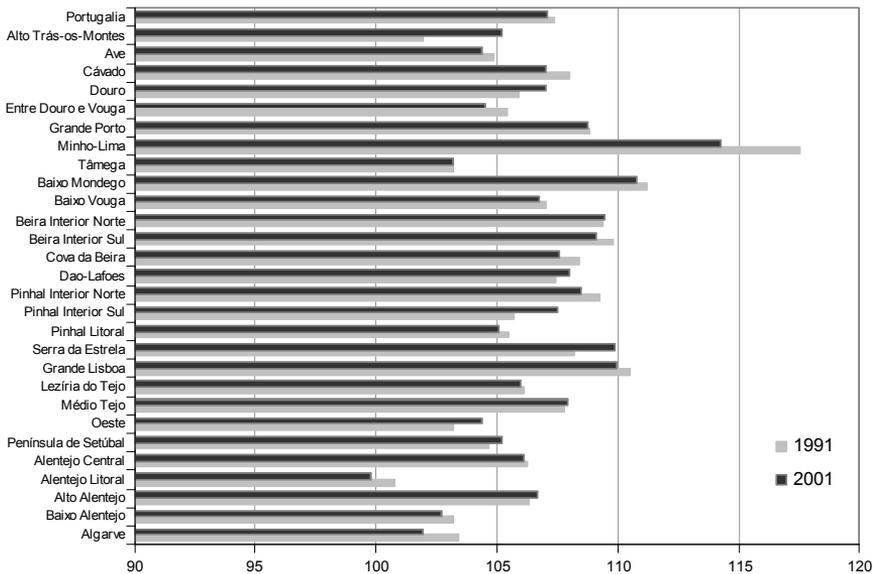


Fig. 6. Feminization rate in Portugal by NUTS 3, years 1991 and 2001

Source: Developed by the author based on data available at *Instituto Nacional de Estatística, Resultados Definitivos de Censos XIII* and www.ine.pt.

political. Because in both cases the emigrants were generally males that would make up even 80% of the total number of migrants, Portugal has a distorted, so-called strongly skewed gender balance even today, with on average 107 females per 100 of males (Fig. 6). Regarding the feminization rate, Portugal exceeds most European countries, preceded only by the Baltic States, i.e. Lithuania (117), Latvia (117), Estonia (114), and also Hungary (110) and Croatia (108) (*Eurostat*).

When trends characterising spatial variations in the gender structure are being presented, it is worth stressing that in Portugal the average difference between the number of males and the number of females being 4% in both the analysed years was specific to districts at a medium level of socio-economic development. The least economically developed areas, mainly agricultural, showed advantageous and balanced relations between the shares of males and females. In districts with a well-developed sector of services that can be recognized as the reflection of a high level of socio-economic development, the disproportion was the largest, with definite prevalence of females. An exception in the category was districts that despite their high feminization rates were not the wealthiest ones, and where the distorted gender structure stemmed from migrations in the past. Such districts are mainly located in the northern part of the country. It seems therefore justified to conclude that, the impacts of selective migrations aside, Portugal's population trends are characteristic of the highly developed countries, in which higher social mobility of women translates into their larger presence in urban rather than rural areas that have more favourable living conditions and a higher level of socio-economic development. The less economically developed areas dominated by the agricultural function and more often rural than urban are characterized by a percentage of males exceeding the national average, which confirms males' weaker socio-spatial mobility.

FINAL COMMENTS

As it has already been mentioned in the first part of this study, the demographic structures and processes in Portugal are dictated by the geographical and natural factors, as well as socio-economic and historio-political determinants owing to which some areas in the country have much more advantageous demographic situation than others do. We can categorize among such areas two largest and absolutely leading in every respect urban agglomerations in the country, i.e. Lisbon and Porto, the western coast, and the Algarve region sitting on the southern coast. The course of population changes is definitely the most worrying in the eastern part of the country, because of the adverse combination of all adverse factors. Considering the situation, it is very important for the territorial and self-government authorities to manage skilfully the demographic, social,

and economic processes in order to smooth out as much as possible variations occurring along the east-west axis and consequently to curb depopulation in the eastern part of Portugal and overpopulation in its west.

However, starting to plan demographic processes one has to remember that Portugal belongs to the group of highly developed countries and so all demographic trends observed there, such as the ageing of its population, the rapid inflow of migrants from the less economically developed countries, or the progressing feminization are in line with the general trends characteristic of this group of countries.

ACKNOWLEDGEMENTS

I have a gratitude for Prof. Daniela Szymańska from Department of Urban and Recreation Studies at the Institute of Geography from Nicolaus Copernicus University for her help during writing this paper.

REFERENCES

- Booth, H.** 2006: Demographic forecasting: 1980 to 2005 in review, *International Journal of Forecasting*, 22/2006, pp. 547–581.
- Brown, J., Ellingham, M., Fisher, J., Hancock, M., Kenyon, G.** 2005: *Portugalia*, Bielsko-Biała: Pascal.
- Długosz, Z.** 2002: Próba określenia stanu i tendencji procesu starzenia się ludności Europy w świetle wybranych mierników, *Biuletyn Geograficzny*, No 1, Toruń: Wyd. UMK, pp. 35–42.
- Długosz, Z.** 2003: The level and dynamics of population ageing process on the example of demographic situation in Europe. In: Szymańska, D., Kostulska-Grzelak, E. editors, *Bulletin of Geography (socio-economic series)*, No 2, Toruń: Nicolaus Copernicus University Press, pp. 5–15.
- Długosz, Z.** 2004: Population ageing in towns of the Małopolskie Voivodeship as concerns economic activity. In: Szymańska, D., Kostulska-Grzelak, E. editors, *Bulletin of Geography (socio-economic series)*, No 3, Toruń: Nicolaus Copernicus University Press, pp. 125–134.
- Dobrzyński, R.** 1985: *Portugalia*, Warszawa: Wiedza Powszechna.
- Faus-Pujol, M. C., A. Higuera-Arnal**, 2000: Does a demographic deficit exist?, *Applied Geography*, 20/2000, pp. 243–253.
- Fernandes, A.** 2007: Le Portugal, un double retournement démographique, *Population & Avenir*, no. 681, p. 16.
- Golini, A.** 2001: Demographic trends and population policies, *Futures*, 33/2001, pp. 27–41.
- Grzelak-Kostulska, E.** 2001: *Przemiany w strukturze i procesach demograficznych na obszarze województwa kujawsko-pomorskiego*, Toruń: Wyd. UMK.

- Holzer, J.Z.** 2003: *Demografia*, Warszawa: PWE.
- Jagielski, A.** 1974: *Geografia ludności*, Warszawa: PWN.
- Kurek, S.** 2002: Proces starzenia się ludności w województwie podkarpackim, *Biuletyn Geograficzny*, No 1, Toruń: Wyd. UMK, pp. 215–225.
- Lloyd-Sherlock, P.** 2000 a: Population ageing in developed and developing regions: implications for health policy', *Social Science & Medicine*, 51/ 2000, pp. 887–895.
- Lloyd-Sherlock, P.** 2000 b: Old Age and Poverty in Developing countries: New Policy Challenges, *World Development*, vol. 28, No 12, pp. 2157–2168.
- Maślanka, J.** 2006: *Przemiany demograficzno-społeczne w Portugalii na przełomie XX i XXI wieku*, a master thesis, typescript at Institut of Geografii Nicolaus Copernicus University.
- Mitęga, M.** 1997: *Demografia społeczna*, Warszawa: PWE.
- Nazareth, J. M.** 2000: *Introdução á Demografia*, Lisboa: Editorial Presença, 2. edição.
- Portugalia, Madera i Azory*, 2003, Warszawa: Wiedza i Życie.
- Okólski, M.** 2004: *Demografia. Podstawowe pojęcia, procesy i teorie w encyklopedycznym zarysie*, Warszawa: Wyd. Naukowe Scholar.
- Resultados Definitivos de Censos de 1991*, Lisboa: Instituto Nacional de Estatística, 1995.
- Resultados Definitivos de Censos de 2001*, Lisboa: Instituto Nacional de Estatística, 2005.
- Rostow, W.W.** 2001: Population in the Twenty-First Century: The Limited Horizon of Public Policy, *Technological Forecasting and Social Change*, 67/2001, pp. 19–34.
- Santana, P.** 2000: Ageing in Portugal: regional inequalities in health and health care, *Social Science & Medicine*, 50/2000, pp. 1025–1036.
- Saraiva, J.H.** 2000: *Krótką historia Portugalii*, Kraków: Universitas.
- Sundbärg, G.** 1894: *Grunddragen of Befolkuningsläran*, Stockholm.
- Sundbärg, G.** 1900: Sur la repartition de la population pas âge et sur les de la mortalité, *Bulletin de l'Institut International de Statistique*, Oslo.
- Tinker, A.** 2002: Social implications of an ageing population, *Mechanisms of Ageing and Development*, 123/2002, pp. 729–735.
- <http://www.ine.pt>
<http://countrystudies.us>
<http://epp.eurostat.ec.europa.eu>
<http://www.asturocio.com>
<http://www.portugal.gov.pt>

CORRESPONDENCE TO:

Jadwiga Maślanka
Department of Recreation and Urban Studies
Nicolaus Copernicus University
ul. Gagarina 9, 87-100 Toruń, Poland
e-mail: socjo-star@wp.pl

ANNEX:

List of NUTS 2 districts and NUTS 3 districts within them in Portugal in 2001
(excluding Madera and the Azores)



Norte:

1 - Alto Trás os Montes; 2 – Ave; 3 – Cávado; 4 – Douro; 5 - Entre Douro e Vouga; 6 - Grande Porto; 7 - Minho Lima; 8 – Tâmega;

Central:

1 - Baixo Mondego; 2 - Baixo Vouga; 3 - Beira Interior Norte; 4 - Beira Interior Sul; 5 - Cova da Beira; 6 - Dão Lafões; 7 - Pinhal Interior Norte; 8 - Pinhal Interior Sul; 9 - Pinhal Litoral; 10 - Serra da Estrela;

Lisboa e Vale do Tejo:

1 - Grande Lisboa; 2 - Lezíria do Tejo; 3 - Médio Tejo; 4 – Oeste; 5 - Península de Setúbal

Alentejo:

1 - Alto Alentejo; 2 - Alentejo Central; 3 - Alentejo Litoral; 4 – Baixo Alentejo

Algarve:

1 – Algarve

